The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees

VOL. LV, No. 24 CHICAGO, ILLINOIS DECEMBER 10, 1910

THE USE OF TYPHOID VACCINES IN TYPHOID FEVER*

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The vaccine treatment of typhoid fever has been tested in recent years by a number of clinicians with varying results. Fraenkel[1] was the first to call attention to the subject of the treatment of this disease by vaccine therapy. Since the commencement of the year 1909, a considerable number of other writers have reported individual experiences of the use of typhoid vaccines as a means of cure. While the medical profession is not, in any marked degree, enthusiastic in regard to the question, every new remedy or method of treatment that rests on a reasonably secure, scientific basis deserves an extended trial before it is rejected. Certain fundamental principles and facts, which are generally accepted by laboratory experts, should be understood also by the clinician who intends to use vaccines in the treatment of typhoid fever and other diseases. Among these are:

1. The object of vaccine therapy is to induce an active immunity by introducing an added amount of morbific material, so that "by manufacturing an increased amount of the protective bodies, it (the body of the vaccinated person) shall inhibit the growth of the invading organisms, and cut short the disease."[2]

2. When the *Bacillus typhosus* undergoes solution in the human organism, endotoxin, to which its pathogenic action is wholly attributable, is set free.

3. In the process of immunization, both bacteriolysis and phagocytosis play a part. Emery[3] rightly holds that phagocytosis is of chief importance from the fact that typhoid bacilli liberate their endotoxin when dissolved by means of bacteriolytic serums.

4. In serious types in which the system is already overwhelmed with the typhoid bacillus and its toxins, it is unwise to employ the vaccine treatment, for it may be a source of fresh danger. Under these circumstances, there can be no response to attempts at stimulating the production of immunizing substances by the introduction into the system of more of the specific poison. On the contrary, there must occur an aggravation of the symptoms.

5. When typhoid fever is being treated with vaccines the determination of the opsonic index in routine private practice is too time-consuming a procedure to be adopted, although desirable, when it can be carried out, in hospital work. Fortunately, it is generally conceded to be unnecessary to estimate the opsonic index, if the effect of the treatment on the general clinical symptoms be closely observed.

6. Typhoid fever is an acute bacteriemia plus toxemia, often fulminating in character, and not a localized infection; hence, brilliant results from the vaccine treatment for the cure of this disease are scarcely to be expected.

It may be questioned seriously whether, on account of the foregoing facts, it is not injudicious to practice vaccine therapy in the severer and so-called malignant types of typhoid fever. In this connection, it should be recollected that chronic infections in which the specific organism is, more or less, completely walled off from the general circulation, with slow absorption of toxins into the blood are those in which the vaccine therapy gives its best results. Here, the production of antibodies can be stimulated "by the introduction of dead bacilli into the general circulation, and these can effectually exercise their therapeutic properties on the bacteria in a chronic lesion" (Swan).

A considerable number of clinical observers have been impressed with the curative or controlling influence of proper inoculations with appropriate bacterial vaccines in typhoid fever. One of the earliest observers, Captain Smallman,[4] employed the method in thirty-six cases with three deaths or a percentage of 8.3. He remarks especially on the absence of prolonged cases, of complications, of sequelæ and of relapses; and, further, that a local infection during convalescence, for example, periostitis of the tibia, can be dissipated by the local injection of vaccines. From an observation of forty cases, Watters and Eaton[5] suggest that the early administration of typhoid vaccine appears to shorten, in many cases, the duration of the disease and to cause the affection to run a mild course. Semple[6] treated nine cases, six of which showed well-marked improvement after the inoculations, especially two cases treated with autogenous vaccines. In the remaining three, amelioration of the symptoms occurred.

On the other hand, certain writers, who have had much experience of the use of vaccines in the treatment of typhoid fever, declare that the results are not especially striking, while others have found them to be practically negative. For example, J. B. Nichols[7] tried the inoculation method in the Freedmen's Hospital, but "no effect on the clinical conditions, in the way of either improvement or aggravation of the symptoms, was definitely demonstrable." Richardson[2] reported the results

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Fraenkel: Deutsch. med. Wchnschr., Oct. 12, 1893.
2. Richardson, M. W.: Vaccine Therapy; General Principles, THE JOURNAL A. M. A., Jan. 22, 1910, p. 255.
3. Emery: Immunity and Specific Therapy, p. 389.
4. Smallman: Jour. Roy. Army Med. Corps, London, 1909, xii, 136.
5. Watters and Eaton: Boston Med. and Surg. Jour., April 22, 1909.
6. Semple: Lancet, London, 1909, ii, 1668.
7. Nichols, J. B.: Washington Med. Ann., November, 1909, p. 293.

of the method in twenty-five cases of typhoid fever without encouraging effects. He, however, asserts that the influence of inoculation is favorable in preventing, in large measure at least, typhoid relapses when its use is continued during the period of convalescence. Emery[8] remarks that the curative treatment of typhoid fever by vaccine therapy is not satisfactory and is still on trial, although he admits that promising results have been obtained by some observers.

In eight cases, reported in this paper, small doses of vaccine were employed, namely, initial doses of 25 millions, and subsequent ones of 50 millions each.

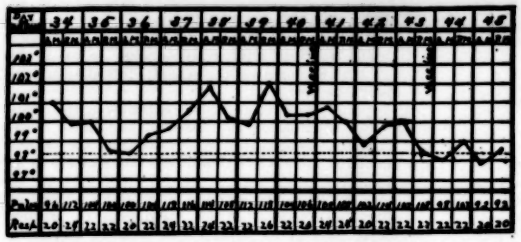

Fig. 1.—Temperature chart, case of B. M., illustrating effect of vaccine treatment in typhoid fever.

These were repeated at intervals of seventy-two hours, as a rule. According to some writers, a safe and useful initial dose is 300 to 350 millions of organisms; this sometimes produces a reactionary rise of temperature to 105 F. In my view, massive doses should not be employed in the milder forms of typhoid fever for the reasons previously adduced.

In my series of eight cases, in all save one of which the Widal reaction was present, a reactionary fever did not occur, but in two instances (Charts 1 and 2), the nocturnal remissions of temperature became distinctly greater immediately after the use of the vaccines, and in one instance of protracted subfebrile temperature due to typhoid fever, it would seem that they were sufficiently powerful to cause a gradual decline of temperature to the normal in the course of several days. In a case of prolonged and exhausting illness, the patient apparently making no progress toward recovery, Ramsburgh, on the advice of Nichols, used a vaccine with definitely favorable results. Ruffin[9] has reported a case of typhoid fever with prolonged course, in which the injection of 800 million bacilli produced a sharp febrile reaction, followed by subsidence of the pyrexia. In one of my cases a relapse occurred.

A blood examination in my series of cases before injection of vaccines and another twenty-four hours thereafter, gave an average result, as shown in the accompanying table.

In view of the fact that phagocytosis most probably plays a principal rôle in Nature's method of curing typhoid fever, the question of the effect of vaccines on the leukocyte count should not be ignored. I am not aware that this aspect of the subject has been investigated hitherto, but it seems to me to be one quite worthy of further consideration. It is clear, if the foregoing premises be correct, that an increased production of polynuclear leukocytes must stimulate, to a corresponding extent, the phagocytosis of the intruding organisms of this disease. But though my own observations, which are too few to warrant generalization, show that small doses of vaccines do not, to any appreciable degree, stimulate phagocytosis during typhoid fever, it is desirable also, to note effect of larger doses.

Finally, it must be conceded that in the complicated process of active immunization, other, although doubtless minor, factors enter. For example, Nuttal and other observers found that "bacteria underwent changes indicative of death and destruction before they were taken up by the phagocytes" (Emery). It will not be denied that serum is an aid to phagocytosis by its action on the bacteria; hence opsonins are believed to be specific antibodies.

Granted that active immunity in typhoid fever is brought about mainly by an increase in opsonins circulating in the blood, it must be recollected, as pointed out above, that bacteriolytic antibodies set free the endotoxin of the typhoid bacilli, and hence may be a source of added danger. Under these circumstances, bacteriolytic serums can scarcely be regarded as Nature's means of establishing immunity.

If, however, as before stated, the process of immunization is dependent chiefly on phagocytosis, and if it be shown that the vaccines stimulate the bone marrow to an increased production of leukocytes, and, through chemotaxis, also, cause an increased output of these cells, then vaccine therapy is to be advised and encouraged.

The mobilized defensive forces in a case of typhoid fever, however, would seem to center about phagocytosis. In this connection, the fact that leukopenia exists in

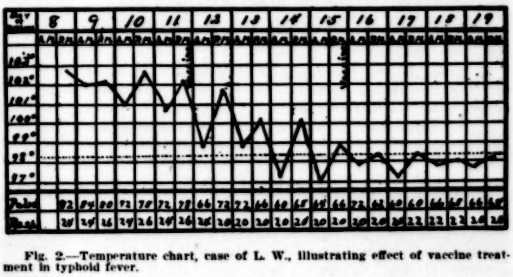

Fig. 2.—Temperature chart, case of L. W., illustrating effect of vaccine treatment in typhoid fever.

TABLE OF BLOOD EXAMINATION

	Case 1		Case 2		Case 3	
	Before.	After.	Before.	After.	Before.	After.
Leukocytes	6,400	7,200	9,600	7,000	6,800	6,800
Polynuclear	54.0	51.0	58.0	61.0	60.0	62.0
Small lymphocytes	26.0	28.0	28.0	34.0	24.0	18.0
Large lymphocytes	14.0	15.0	9.0	3.0	14.0	18.0
Transitional	3.5	3.0	4.0	2.0	2.0	....
Eosinophils	1.5	2.0	1.0	....	....	....

	Case 4		Case 5		Case 6	
	Before.	After.	Before.	After.	Before.	After.
Leukocytes	8,000	9,200	5,600	5,940	7,360	7,840
Polynuclear	69.5	70.1	71.5	64.2	72.0	68.4
Mononuclear	2.0	1.0	3.0	2.0	2.0	3.0
Transitional	2.0	2.0	1.0	3.1	1.0	3.0
Lymphocytes	26.5	26.9	24.5	30.7	25.0	25.6

8. Emery: Immunity and Specific Therapy, pp. 390-391.
9. Ruffin: Washington Med. Ann., 1909, viii, 77.

uncomplicated typhoid fever is to be recollected. At all events, in view of the foregoing facts, the use of vaccines in the treatment of this disease should be somewhat restricted according to conditions and indications presented by individual cases. Their routine use, however, is not to be encouraged, but it is obvious that an anti-endotoxin serum would, by neutralizing the soluble endotoxins, constitute the ideal method of treating typhoid fever. Such a serum has been prepared by MacFadyen, and favorable results have already been reported from its use, when administered early in typhoid cases. It is not improbable that the vaccine treatment of typhoid fever, except as indicated below, will give place to the method of establishing passive immunity by means of an anti-endotoxin. In view of the marked discrepancy among clinical observers as to the size and repetition of the doses, there would seem to be great necessity for an especial consideration of these aspects of the question of therapeutic inoculations in the future.

Vaccine therapy in the treatment of typhoid fever, however, should receive a more extended trial than hitherto, more particularly in the earlier stages of mild types of the disease, before being rejected. Finally, in the present state of our knowledge, the value of vaccines for the following purposes must be conceded: (1) as a means of prophylaxis; (2) in suitable cases when continued during convalescence, to prevent relapses; (3) to combat local infections with the typhoid bacillus, as for example, bone suppurations which arise in the period of convalescence, and (4) for the removal of the typhoid bacilli from the feces and urine in the case of typhoid-carriers.[10]

I desire to express my thanks to Dr. A. A. Stevens, who at my suggestion, treated three of the cases reported above with the results of blood examinations before and after the inoculations, in the wards of the Protestant Episcopal Hospital of Philadelphia, and to Dr. Robert B. Walker for furnishing one of the cases belonging to my series from the Philadelphia Hospital.

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THE FUNDAMENTAL PRINCIPLES UNDERLYING THE TREATMENT OF WOUNDS ON THE BODY SURFACE

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Steadily through the maze of a multiplicity of methods, there has crystallized the present treatment of surface traumatic lesions. Based on the knowledge of definite pathologic and histologic processes and confirmed by the shorter periods of disability and lessened distortion of function, modern treatment of surface injuries may be reduced to two fundamental principles: *moist hyperemia* and *the open-air treatment;* in other words, the use of a dressing capable of giving sustained heat and moisture, or one so constructed that it will not displace the protective covering of coagulated serum, yet will protect the wound from further damage.

The wide latitude of pathologic possibilities in surface lesions, varying as they do from a microscopic skin puncture attended with violent constitutional toxemia and death, on the one hand, to extensive abrasions and lacerations with no constitutional manifestations on the other, has, in a measure, justified any course which has had as its result a satisfactory functional termination.

Until recently, little thought was given to the individual factor of lowered bacterial resistance, or the influence of the general state of nutrition on cell-regeneration. But now, with the more careful and detailed consideration of the possibilities of lowered resistance and cell nutrition, there has been a stimulus for the introduction of methods calculated either to intensify locally, or to increase, the number of antibactericidal bodies at the various parts of the organism where needed, or to engorge the tissues with nutritive plasma for the revitalization of the traumatized cell.

Surface lesions of the body widely differ in character, as burns, incised or crushing wounds, etc., and they may also vary from the small pin-point puncture to the extensive loss of continuity which is limited only by the size and force of the destructive agent. But so far as

Fig. 1.—Method of applying large and copious wet dressings.

the end-results are concerned, the only difference is their type and degree of infection. Therefore the plan of treatment must be early outlined, if the most successful results are to be obtained. It is well known that in burns, skin-grafts and other superficial traumas which remain sterile, the dry method of treatment gives the most satisfactory results both as to convalescence and function, while the moist hyperemia is the treatment especially adapted to infected wounds, where the organism has lodged itself in the subcutaneous tissues and lymphatics.

As a rule, the infection is either of the staphylococcic or streptococcic type; the former invariably localizes in a small area, while the latter is most likely to lodge in the subcutaneous tissues and extend rapidly along the lymphatics. Where resistance is fair and early excited, the chemotactic disturbance is quickly manifested with temperature and other clinical phenomena of inflammation. In either type of infection, it is extremely impor-

10. Irwin, S. T., and Houston, T.: Lancet, London, Jan. 30, 1909, p. 311.

tant, as soon as it becomes evident that a pathogenic organism has lodged in the subcutaneous tissues and that the resistance force is low, that these natural forces be augmented by either the active or passive hyperemic process, or both. Every effort must be immediately made to create an overwhelming quantity of polymorphonuclear neutrophils and leukocytes to inhibit and digest the invading organisms before they have time to extend into the surrounding structures.

In all injuries involving a break in the skin, the first question to be determined is the presence or absence of infection, and if there is infection, whether or not the individual has sufficient resistance to destroy the organisms quickly providing moist hyperemia is properly used.

Fig. 2.

Fig. 3.

Figs. 2 and 3.—Sheet of light aluminum to which is fastened a strip of poultry wire.

The time is not long past when all these wounds were considered as primarily infected, and vigorous steps were immediately taken to rid the host of the unwelcome guest. Active antiseptics were freely used, most of which were destructive alike to tissue and invading organism, and, as a result, tissue necrosis with moist surfaces, sloughs, granulations and large cicatrices was the common sequence.

At the present time, the practice of putting every injury in wet dressings, or even the use of copious washings, is uncalled for; especially as the coagulated serum is extremely soluble in water, and such procedure means the removal of Nature's protective layer of coagulation from the surface, and a portal left open for infection. The care of these cases, requires of course, considerable judgment, but why modern surgery should find any more reason for vigorous and persistent cleansing of these surface lesions than in the case of gunshot wounds of the extremity seems a question worthy of consideration.

If it is good practice to put gunshot wounds up in sterile dressings and wait for further evidence of infection, why should not the same principle apply to other reasonably sterile and easily accessible traumas of the surface? Where the history of the case shows a strong probability of there having been infectious material introduced into the wound, then great care should be used and proper application of the wet dressings made, with full knowledge of the fact that Nature's protective barrier must be sacrificed in the use of moisture.

We know that wherever infections occur, the use of moist dressings properly applied, quickly raises the polymorphonuclear neutrophilic blood content, which

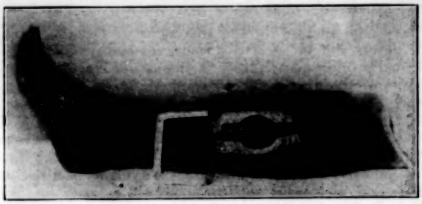

Fig. 4.—Copper or aluminum coated fly-screen bound with adhesive tape.

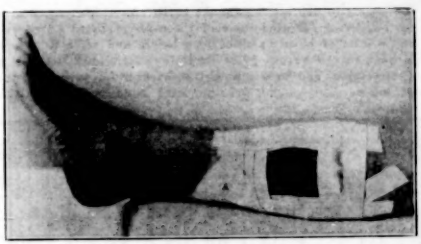

Fig. 5.—Adhesive straps are then passed over the screen, holding it firmly to the adhesive sheeting.

soon overwhelms the invading organism. Where no infection exists, the dry dressing, properly applied permits of surface coagulation of the exudates, which forms both a splint and an impervious barrier to further infection. Repair is very prompt in these latter cases if destructive antiseptics have not been used. Here the moderate application of sterile warm water and a bland soap, followed by open-air dressings, is usually all that is necessary to accomplish rapid and uncomplicated repair. Even in the greasy dirt-begrimed hands of the machinist, where it is not possible to wash the wound, the application of either turpentine or the tincture of iodin is very practical and effective, and may be safely followed by the dry dressing.

The day of the local applications of salves and dressing powders in emergency surgery, fortunately, has passed. If the indications for the treatment of these cases are properly interpreted, and the principle underlying the use of moist hyperemia or open air is fully

comprehended and applied, the profession at large will greatly reduce the number of general septicemias. Where infection is definitely present, free incision must of course be made, and followed by the application of very large and copious wet dressings, consisting of, first, the gauze covering the site of the lesion and near-by tissues, then several layers of cotton, and finally the oiled silk, moisture and bandage (Fig. 1).

If a finger only is involved, the entire hand should be included in the dressing, so that the full benefit of the hyperemia may be secured. When the oiled silk has been well fastened down, a last small opening should be left, through which the hot fluid is poured until the dressings are supersaturated. After this, the oiled silk should be completely closed, to retain both moisture and heat. A splint should then be applied to keep the part at rest. Extreme care must be exercised that the solutions poured into the dressings are not too hot, for extensive burns may easily be produced, which are often more serious to care for than the original lesion.

Fig. 6.—A very satisfactory dressing in skin grafting and varicose ulcers.

Several solutions may be used to moisten these dressings, the simplest and safest of which is the hot sterile physiologic salt solution. Equal parts of alcohol and saturated solution of boric acid make a solution which is ideal for use in early dressings, because of its local stimulating effect on the tissues, which produces an active local hyperemia. Thiersch's solution (salicylic acid, one-half dram, boric acid, 2 drams and a quart of sterile water), so well recommended by the late Nicholas Senn, is another safe and effective solution for use in the wet dressings.

Unless the dressings are large enough to retain both moisture and heat for long periods of time, they are worse than useless.

Dressings should be changed once in twelve to twenty-four hours, depending on the amount of discharge, but the solution should be repeated as often as necessary. A change of the solution is often of great advantage, especially if the alcohol has first been used, since the other named solutions are less stimulating yet almost as satisfactory as hyperemic agents. After a certain period tissues often refuse to respond to further stimulation.

Where infection has not occurred, and is not likely to occur, it is much better that no dressings should come directly in contact with the wound, especially if it is extensive and moist. It has long been recognized that burns and traumas of the face, where dressings are not applied, soon heal with but little inconvenience to the patient, and a minimum of cicatrix. The same principle applied to other parts of the body works equally well. However, to devise successful methods for the application of treatment to these parts has been a difficult task, and the means at present used are almost as many as the surgeons applying them.

Two methods which I have been using for the last four years may be of interest, since they have been extremely satisfactory in my work (Figs. 2 and 3).

One is the use of a sheet of light aluminum as a base on which is fastened a cage made of poultry wire of any desired mesh for enclosing an extremity. The aluminum is light, clean, and easily punctured, yet firm enough to hold the poultry-wire top to the desired position. This frame is extremely light and comfortable, and easily applied. It is especially useful in extensive burns of the extremities.

The other is the use of aluminum-coated metal fly-screen, cut to the desired size, bound with adhesive tape, and set on strips of adhesive felt sheeting, which have first been cut, fashioned and attached to the skin about the outer margin of the wound (Figs. 4 and 5).

Adhesive straps are then passed over the screen, holding everything firmly to the part, yet nothing touches the wound (Fig. 6).

It is then covered with gauze dressings and snugly bandaged.

This last method has, in my experience, been very satisfactory in skin grafting, and in varicose ulcers of the leg. In the latter lesion, one may apply any form of medicament first, then cover with wire netting as described.

612 Empire Building.

SOME EFFECTS OF BRIGHT LIGHT ON THE EYES *

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It is my first and most pleasing duty to express to you my high appreciation of the very great honor you have done me in inviting me to deliver this address to so distinguished an audience. It has been my good fortune to have met many of you on the occasions of your pilgrimages to the Old World. Moorfields and Vienna have long been the Mecca and Medina of ophthalmologists, and we at Moorfields are proud of the sacred fire which has been handed down to us by our predecessors. No branch of science, however, can flourish on the records of the past, and we in our turn must make pilgrimages to newer shrines, there to gather fuel to keep the sacred flame alight. I would fain believe that you in the past have learnt much from us; we too have learnt much from you. Thus in the brotherhood of science may we cement the brotherhood of race which is our inalienable heritage.

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixty-First Annual Session, held at St. Louis, June, 1910.

I propose to speak to you to-day on some effects of bright light on the eyes. I cannot adequately traverse so large a subject in the short time available. I shall, therefore, confine my remarks chiefly to those details which have specially occupied my attention recently. We as ophthalmic surgeons are fully cognizant of many pathological conditions in which the harmful effects of bright light, natural or artificial, are manifest or may be reasonably conjectured. I need only enumerate eclipse-blindness, snow-blindness, ophthalmia electrica, lightning cataract, glass-worker's cataract, erythropia. In all these exposure to bright light plays an important if not a prepotent part. There are many other conditions in which this factor has to be taken into consideration, and we as yet know little of the prolonged effect of various sources of artificial illumination on the eyes. Engineers and others who devote their attention to artificial lighting have until recently paid little or no attention to the physiological and pathological aspects of the question. Efficiency—maximum illumination at minimum cost—has been their watchword. We opthalmologists, if we are honest with ourselves, must confess to a lamentable ignorance of the conditions which render bright light deleterious to the eyes and of the methods whereby these conditions may be ameliorated. We must set our house in order and this dusty corner must be swept and garnished.

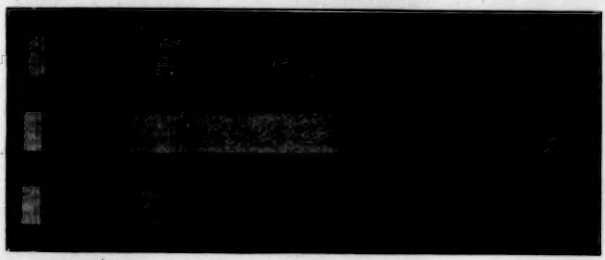

Figure 1.

Figure 2.

Figs. 1 and 2.—Photographs showing spectra of cornea with carbon and bare iron with different lengths of exposure. The cornea was found to offer no resistance to wave lengths greater than 295 microns, but all those beyond this limit were completely cut off.

THE PHYSICS OF BRIGHT LIGHT

The first problem which confronts us is a physical one. What is bright light? Physiology is the knowledge of the response of the living organism to physical stimuli, and ere we can attain to certain knowledge of the inception, development and consummation of the response we must obtain accurate information of the forces which initiate it. What is generally understood by the term bright light is a composite congeries of allied manifestations of energy, comprising such apparently various forces as heat, light in the narrower sense of the word, and chemical action. Various as these forces are, they are physically identical in character, all consisting of waves of identical character, differing only in length and rapidity of vibration. Those of longer wave length cause the sensation of heat, those of shorter wave length give rise to chemical action, whilst those of intermediate wave length cause the sensation of light; but while the physical series is perfectly and mathematically uniform, the physiologic manifestations overlap and vary according to the nature and condition of the recipient organs. I may seem to you to be laboring over elementary details, but it appears to me to be of the greatest importance to bear them well in mind, as I hope now to prove. If we take ordinary sun light as the basis of our investigations it is possible to split it up by appropriate means into its component "rays," differing from each other in wave length. Of these, certain are visible and constitute light in the narrower sense of the word, but instead of giving rise to the sensation of white light they, to the majority of people, show certain pure colors, viz.: red, orange, yellow, green, blue and violet in order, the red having the longest, and the violet the shortest wave length. The visible spectrum extends from about 723 microns at the red end to 397 microns at the violet end. Beyond the red end are rays of greater wave length which cause a rise of temperature; beyond the violet end are rays of smaller wave length which are capable of causing chemical action. So striking is the physiologic phenomenon of the visibility of the intermediate series that the heat rays are commonly spoken of as "infra-red" and the actinic or chemical rays as "ultra-violet." For this reason I think that the importance of the physical uniformity of the series is obscured and is liable to be lost sight of. For example, every average normal individual

is not able to see all the rays from 723 microns to 397 microns; most people see fewer, roughly from 600 microns to 400 microns. Again, though the ultra-violet rays are particularly potent in inducing chemical action, the visible rays are also actinic, though in less degree, and the same is true of the infra-red rays in still less degree. Further, the longer visible rays also cause a rise of temperature. The most convenient and most striking method of demonstrating actinicity is by the photographic film, so that we have come to regard a photograph of the spectrum as a complete analysis of the light under observation, too often forgetting that the photograph varies with the specific sensitiveness of the film to particular groups of waves. Thus, it is only by specially sensitized films, invented by Sir William Abney, F.R.S., that it is possible to demonstrate infra-red rays photographically.

It is further essential that the mode of analysis of the light under observation be unexceptionable. An ordinary spectroscope with glass prisms and lenses suffices to demonstrate the visible spectrum, and indeed with minute accuracy, but it is almost useless for showing the shorter ultra-violet rays, since these are absorbed by the glass. In order to demonstrate the full extent of the spectrum it is necessary to use a train of lenses and prisms made of quartz, which allows a maximum number of rays to pass unimpeded.

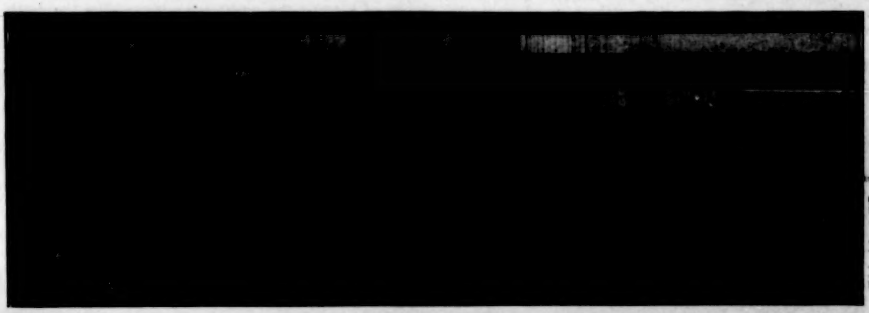

Figure 3.

Figure 4.

Figs. 3 and 4.—Photographs showing spectra of lens suspended in normal saline, in thin films and squeezed to different thicknesses with different periods of exposure. Rays of wave lengths less than 350 microns are absorbed completely, absorption commencing at about 400 microns. Absorption varies *pari passu* with the thickness of the layer of lens substance.

PRACTICAL CONSIDERATIONS

To come now to the practical application of these considerations to the problem before us, we must guard against presuming that the retina will act exactly like a particular photographic film; that because a light very rich in ultra-violet rays produces a particular effect on the retina or lens, that effect is produced solely by ultra-violet rays and that the visible rays play no part in the causation; that because certain rays produce pathologic changes in the retina of the aphakic eye they will produce the same changes in the normal eye—they may be absorbed by the lens; and so on.

From what I have already said it should be obvious that the next point in logical sequence in our investigation should be the determination of the absorptive capacity of the various dioptric media of the eye for particular rays of the solar spectrum. There is an additional reason in favor of this procedure in that the absorption of energy means simply the transformation of energy, and it may be that the transformed energy is exerted deleteriously on the organ under investigation. Thus the absorption of particular rays by the lens may be the cause of pathologic changes in that structure.

But before passing on to this question it will be well to describe the nature of the rays emitted by various sources of artificial illumination, partly because it is more convenient to use some of these in experimental investigations than sunlight, and partly because we wish to find out if these have any deleterious effects, and if so, their nature and cause.

THE SPECTRA OF ARTIFICIAL LIGHTS

The spectra of artificial lights show a remarkable variety in the range of rays emitted. They have been

investigated by many observers, notably recently by Schanz and Stockhausen and Hallauer. Schanz and Stockhausen's observations unfortunately do not give accurate limits of the spectra in wave-lights. It will suffice to state roughly the limits of a few of the commoner lamps used for ordinary illumination or for experimental purposes. A petroleum lamp with an ordinary white glass cylinder gives a spectrum from 600 microns to 350 microns; osmium and tantalum lamps from 630 microns to 300 microns; an Auer incandescent gas lamp with glass cylinder from 600 microns to 329 microns; an arc lamp with clear globe from 600 microns to 300 microns; the same lamp without any globe from 600 microns to 230 microns; with an opal globe down to about 330 microns. The Schott uviol mercury vapor lamp, in which incandescent mercury vapor is contained in a long tube made of a special quartz-glass gives forth ultra-violet rays down to 253 microns, but is poor in red and yellow rays.

ABSORPTION BY THE DIOPTRIC MEDIA

Passing now to the absorption of light by the dioptric media of the eye we have to investigate the cornea, lens, and vitreous. The aqueous acts like water and causes very little absorption of visible or ultra-violet rays. Like water, too, it absorbs heat strongly, so that it is improbable that even with exposure to extreme heat such as is met with in iron works and glass works much heat reaches the lens. More experiments, however, are needed on this point and it is unjustifiable to be dogmatic in the present state of our knowledge.

EXPERIMENTS

I made some experiments two years ago on the absorption-spectra of the cornea, lens and vitreous of the rabbit with Messrs. E. C. C. Baly, F.R.S., and E. E. Henderson. These have since been extended and confirmed by my assistant, Dr. E. K. Martin.

In this research experiments were made to determine the precise limits within which rays are absorbed by the refractive media of the eye, and the effect on these limits of keeping the media some hours after the death of the animal. Young rabbits were used in all cases.

Figure 5.

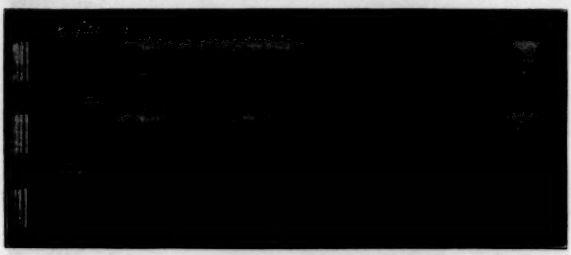

Figure 6.

Figs. 5 and 6.—Photographs showing spectra of vitreous. The vitreous in a layer 3/16 inch thick shows a broad absorption band extending from 280-250 microns, with a maximum at 270. The margins of the band are ill-defined. Exposures for different periods as shown.

The spectrophotographic method of recording the results was used and the media were mounted in cells with parallel sides. In the case of the cornea and vitreous the cell was placed close to the slit of the spectroscope. The lens was dealt with in two ways:

1. Suspended in normal saline and placed at a distance from the slit greater than its focal length, so that a blurred image of the source of light was thrown on the slit. This was necessary to avoid horizontal lines on the resulting photograph; the precautions taken quite excluded the possibility of stray light entering between the cell and the slit.

2. A thin layer of lens substance was squeezed out flat between the parallel sides of the cell; this was done to eliminate any possible apparent absorption due to the shape of the lens.

A preliminary series of spectro-photographs was taken to eliminate absorption within the limits of the visible spectrum. In this the source of light was the crater of a carbon arc and a 2-prism spectroscope was used, the prisms and lenses of the instrument being of glass.

The plates used were "orthochromatic," and it was found that they regularly showed three faint absorption bands in the green, yellow and red. These represent the absorption of the dye used to sensitize the plates to red light.

All the media were found to be uniformly permeable to rays between the wave lengths 660-390 microns. (The visible spectrum extended from approximately 760-380 microns.)

For the ultra-violet rays the iron arc was the source, and quartz was used throughout. Ordinary plates were used, i. e., plates containing no dye and hence giving no absorption bands. The range of wave lengths covered in this series was 450-230 microns.

Cornea. The cornea was found to offer no resistance to rays of wave-lengths longer than 295 microns, but all those beyond this limit were completely cut off.

Lens. (a) Suspended in normal saline. Rays of wave-lengths less than 350 microns are absorbed completely. The line is not a sharp one, the absorption commencing at about 400 microns.

(b) Squeezed to different thicknesses. The absorption varies *pari passu* with the thickness of the layer of lens substance.

Vitreous. The vitreous in a layer 3/16 inch thick shows a broad absorption band extending from 280 to 250 microns, with a maximum at 270 microns. The margins of the band are ill-defined.

These results agree closely with those recently obtained of Schanz and Stockhausen and Birch-Hirschfeld.

The shortest interval between the death of the animal and the taking of the observation was three minutes, the longest eleven minutes.

Observations were also made on the vitreous 1 hour, lens 5 hours, and cornea several hours after the death of the animal. The results obtained were identical with those from fresh specimens.

The photographs were taken at the Imperial College of Science and Technology, South Kensington, those of the visible spectrum in Sir William Abney's laboratory, the ultra-violet series in the astrophysical laboratory by kind permission of Professor Fowler, F.R.S., to whom I am indebted for valuable suggestions.

OTHER EXPERIMENTAL OBSERVATIONS

It would be unsafe to apply these results, obtained with rabbits' eyes, directly to the human eye. As regards the cornea and vitreous observations of a similar nature made by Schanz and Stockhausen on the calf's eye are confirmatory. Birch-Hirschfeld has similarly investigated the eyes of calves, pigs and oxen. He found little difference in the absorption of ultra-violet rays by the cornea, giving the limit as 306 microns, somewhat higher than for the rabbit, and rather more than that of ordinary glass, the limit of which may be taken as 300 microns. In all cases too Birch-Hirschfeld found the limit of absorption to be 300 microns for a layer of vitreous 1 cm. thick. Greater differences which cannot be neglected were found with various lenses. Those of the rabbit's lens varied between 330 microns and 390 microns. For the pig's lens the average limit was 330 microns with variations of about 15 microns; for the calf's 328 microns, with variations of 12 microns; for the ox lens from 270 microns to 400 microns.

Schanz and Stockhausen examined the cornea and lens of a child who had glioma. They do not give accurate wave-lengths, but the cornea absorbed up to nearly 300 microns, and the lens about the same; whereas in a case of injury, whilst the corneal absorption was about the same, that of the lens was much greater, up to about 350 microns.

Hallauer has recently found that the corneal and vitreous absorption in the eye of a man of forty extended to 295 microns. He has examined a large series of human lenses from individuals of different ages and has arrived at some valuable conclusions. He finds the limits of absorption on the whole dependent on age, with some individual variations due to thickness, color and consistence, general disease also introducing a disturbing factor, which must be taken into account in Schanz and Stockhausen's case of glioma. In babies and children absorption extends to 400 microns, often combined, however, with an inability to absorb rays from 300 to 310 microns. This transparent band persists up to about the twentieth year and may be more extensive in debilitated conditions. *Pari passu* with the loss of this band after twenty the limit of absorption retracts to about 377 microns, but extends with advancing age to 400-420 microns; extreme debility from disease diminishes absorption to a minimum of 375 microns.

From these investigations it will be seen that the lens has a very powerful capacity for absorbing ultra-violet rays. This fact is indeed easily and strikingly demonstrated by the strong fluorescence which occurs when these rays fall on it. Schanz and Stockhausen attribute the fluorescence to rays between 400 microns to 350 microns, but as Helmholtz pointed out, a fluorescent body always absorbs strongly those rays which induce the fluorescence. Hence the chief rôle must be allotted to rays between 350 microns and 300 microns, for those from 400 microns to 350 microns are absorbed to a relatively slight extent by the lens. Another fact pointed out by Helmholtz, that the light emitted by fluorescing bodies is of longer wave length than that which causes the fluorescence, confirms this view. Fluorescence is indeed a degradation of invisible ultra-violet rays to rays of the visible spectrum. The investigation of this question is not unattended with complicating features, especially those due to fluorescence of the observer's own lenses.

PATHOLOGIC CHANGES PRODUCED

Whatever be the exact limits of the ultra-violet rays which are capable of causing the crystalline lens to fluoresce, there is no doubt about the fact, nor that such rays are absorbed by the lens. It is not, therefore, illogical to conjecture that these rays may produce pathological changes in the structure. For this reason, in conjunction with Mr. E. E. Henderson, I have exposed rabbits' eyes for prolonged periods to the light from Schott's uviol mercury vapor lamps. Similar experiments have been made independently by Hess, Birch-Hirschfeld, and others. As already stated, these lamps emit ultra-violet rays down to 253 microns. Four tubes were used and the rabbit's eyes were situated about 20 cm. from them, exposures of one to four hours being made repeatedly two or three times a week for several weeks. At the distance used the rise of temperature is negligible. It should be noted that the eyes were exposed not only to the ultra-violet, but also to the visible rays. Even with the longest exposures no definite opacification of the lens was observed ophthalmoscopically, nor even on examining the lens macroscopically after killing the animal. After hardening in Zenker and examining the anterior capsules microscopically, however, changes could, be seen in the anterior capsular cells. These changes have been well described and illustrated by Hess, and our conclusions as to their appearances are in agreement with his.

When the capsule, stained with hematoxylin and eosin is spread out and examined the most noticeable feature is the marked difference between the capsule cells in the pupillary area and those immediately surrounding this area. The nuclei of those exposed are swollen and their chromatin stains badly; the cytoplasm may be vacuolated. In the surrounding zone, behind the pupillary

margin of the cornea, the cells are very closely packed together. The nuclei are small and the chromatin stains deeply. There may be mitoses in this area as well as still more peripherally. It is probable, as Hess conjectures, that the crowding together of the anterior capsule cells behind the iris is purely mechanical due to the swelling of those in the pupillary area, and is not caused by any compensatory regeneration. In some of his specimens it led to actual multiplication in the layers and heaping up of the anterior capsule cells.

Changes similar to those described were observed by Widmark after exposure to light from the arc lamp. Hess found that the changes did not occur if a glass plate which absorbed the rays of smaller wave length than 300 microns, was interposed between the lamp and the eye. I am not convinced of the accuracy of this observation. Examination of control capsules shows that the changes are rather those of degree than absolutely abnormal phenomena. More work on the dark-adapted eye is needed to settle this point conclusively. Hess considered that the experiments prove that the changes are due to rays of smaller wave length than 300 microns. But, as already stated, there is ample evidence to show that such rays do not reach the lens, being absorbed by the cornea. No similar experiments in which the visible rays, i. e., those of greater wave length than 400 microns are cut off, (only those between 400 microns and 300 microns being allowed to fall on the lens), have been carried out. It is most probable that the changes are due partly to ultra-violet rays of greater wave length than 300 microns and partly to rays of the visible spectrum. We have here a further example of the necessity for bearing well in mind the fundamental fact of the physical continuity and similarity of the rays of the visible and of the ultra-violet spectra.

CHANGES IN THE LENS—BOTTLE-MAKER'S CATARACT

Many pathologic changes in the lens in which bright light may be, or at least has not been disproved to be, an important etiological factor will occur to you. I do not propose to discuss this factor in the causation of senile cataract. Schanz and Stockhausen attribute to it a preponderant rôle. In this I think they go far beyond the bounds which the scanty evidence at present available warrants. I will confine my remarks to glass-workers' cataract, which occurs under conditions of exposure to intense glare and in which the influence of bright light has at any rate to be eliminated before we can arrive at a just conclusion as to its causation. Attention was first directed to the prevalence of cataract in glass-blowers by Meyhöfer of Görlitz in 1886. Much additional information was brought forward in 1888 in an inaugural dissertation by Röhlinger of Munich Since that date papers have been published by Cramer of Kottbus, Robinson of Sunderland, Snell of Sheffield, and others. In 1907 the British Home Office published a valuable report by Dr. Morison Legge, H. M., Medical Inspector of Factories, who confirmed the prevalence of the disease in this class of workmen, doubt having been expressed on the point by Snell. The matter came under the consideration of the Departmental Committee appointed in 1906 to schedule industrial diseases for the purpose of the Workmen's Compensation Act (1906). As a result the Home Office approached the Royal Society in 1908 with a view to their appointing a committee to investigate the physical and physiologic problems involved. A committee, consisting of physicists, physiologists and ophthalmologists, the latter including Mr. E. Nettleship, the late Mr. Marcus Gunn, whose recent loss we all deplore, and myself was appointed. In the autumn of 1908 a subcommittee, including Mr. Marcus Gunn and myself, visited some of the most important glass-works in Sunderland, Gateshead, and St. Helens. Such clinical investigation as we were able in the short time at our disposal to carry out seemed to prove conclusively that bottle-makers are subject to a form of cataract which appears to be characteristic and is unlike other forms of cataract commonly observed. In its typical form there is a dense, well-defined disc of opacity in the center of the posterior cortex. Not infrequently slighter hazy opacities are seen around the posterior cortical disc. Makers of pressed glass articles may also show cataractous changes in the lens. The typical condition, however, was seen in only one case, out of five of the selected cases examined, the remainder having forms of cataract differing in no respect from those not infrequently seen in elderly persons. Some of the patients examined showed deficiency in the power of distinguishing violet. It is not improbable that prolonged exposure to the conditions of work causes changes in the excitability of the retina. (The observations of Birch-Hirschfeld on defects of color sensation and in the color fields in cases exposed to the action of mercury-vapor lamps are interesting in this connection.) We were unable to examine any patients who worked in plate-glass manufactories. There is reason to believe that they also suffer from the disease.

Investigation of the physical conditions in glass bottle manufacture has been carried out by Sir William Crookes, F.R.S., for the Royal Society Committee, and by Schanz and Stockhausen. The materials are melted in a large fire-brick tank, heated by incandescent gas and air playing over the surface. The area of the tank is about 82 square yards and it contains some 300 tons of "metal." The tank is divided into two unequal parts by a fire-clay partition, having at the lower part an opening through which the melted glass can flow. The "working end" has an area of about 19 square yards. The temperature at the "melting end" is probably about 2,000 C., that at the working end 670 C. Schanz and Stockhausen found that the temperature at the place where the worker takes the molten metal from the tank is about 110 C.; the intensity of the light falling on his eyes is about 540 Lux.

Spectro-photographic investigation shows extension of the spectrum at each end with increased length of exposure. A photograph with twenty minutes' exposure includes wave lengths 452 microns to 690 microns; with one hour exposure, 364 microns to 760 microns; with three hours exposure, 334 microns to 780 microns. The ultra-violet area is, therefore, limited to rays of comparatively long wave length, but it is probable that this varies with the exact composition of the "metal" used. The heat rays at the red end are extremely powerful.

Exposure of sensitive films wrapped in black paper and lead foil in which designs had been cut showed complete absence of x-rays even after prolonged exposure.

Schanz and Stockhausen conclude from their observations that glass-workers' cataract is due to ultra-violet rays. In my opinion the experiments are by no means conclusive in either direction. It is certain that most of the ultra-violet rays emitted by the molten glass will be absorbed by the cornea, only relatively few of those of shorter wave length reaching the lens at all. The problem is an extremely difficult one, for it is cer-

tain that the disease occurs only in men who have been engaged at the work for many years. It is most commonly found in "finishers," experienced men who have been through all the stages of bottle-making ("taker in," "wetter off," "gatherer," "blower") and who are engaged in putting the rings on the mouths of the bottles. These men work close to the furnace, taking the metal from the tank, applying it to the mouth of the bottle, and fashioning it to the required form with a mould. They are continually looking into the furnace or at the mass of glowing, viscid glass. A finisher can do from 50 to 120 dozen bottles a day. Only the best workmen are promoted from blower to finisher. The cataract occurs also among the gatherers who collect the requisite amount of metal from the tank on the blowpipe, and the blowers, but only if they have been long engaged in the trade. Blowers have always previously been gatherers, so that both classes have usually been long engaged in an operation which requires looking repeatedly into the furnace and at the gradually cooling mass of glass.

It is extremely difficult to devise conclusive experiments for the elucidation of a problem in which the causal agent acts slowly over a very prolonged period, and until further experiments have been made to eliminate the heat factor it would be unwise to make any dogmatic statement as to the true cause of glass-worker's cataract.

EFFECTS ON CONJUNCTIVA

The diseases which I have already touched on by no means exhaust the list of those attributable to bright light and ultra-violet rays. One of the chief difficulties which we have to contend with in experimental exposure of the eyes of animals to light rich in ultra-violet rays, is the intense congestion and inflammation of the conjunctiva which is soon brought about. The irritation does not manifest itself until a latent period of some hours has elapsed, but is much aggravated by repeated exposures, so that finally the cornea is almost covered by the chemosed conjunctiva and swollen lids. The experimenter himself is not immune from this intense conjunctivitis, which is encountered also among photographers using mercury-vapor lamps, men engaged in testing photometrically naked arc lights, and so on. Complete protection is afforded by wearing plane clear glass spectacles, or, in the case of experiments on animals, by interposing a plate of glass between the animal's eye and the source of light. Since ordinary glass cuts off all the ultra-violet rays of shorter wave length than 300 microns, whilst permitting the visible rays to pass almost unimpeded, it must be concluded that the irritation is caused by ultra-violet rays of lower wave length than 300 microns. Exactly the same clinical manifestations have long been known after exposure of the unprotected eyes to light reflected from vast surfaces of snow. There is every reason to believe that "snow blindness" is due to the same cause, since at high altitudes fewer ultra-violet rays are absorbed by the atmosphere and more are reflected from the brilliant white surfaces. The same rays are responsible for "sun burn," and a striking demonstration of the absorptive capacity of the crystalline lens for these rays is shown by placing a crystalline lens on the skin and then exposing it to intense sunlight. When the "sunburn" develops, a white spot of unaffected skin marks the place where the lens lay. "Ophthalmia electrica" is of exactly the same nature as "snow blindness" and is due to the same cause.

OTHER EFFECTS

Birch-Hirschfeld has reported cases which tend to prove that exposure to light rich in ultra-violet rays is not without effect on the normal retina, so that minor defects in the color fields are produced. He found in experiments on animals that such light produced definite changes in the ganglion cells and the cells of the nuclear layers, resulting in chromatolysis, vacuolation of the cells, etc. changes which were much increased in eyes rendered artificially aphakic.

The red vision which is often so troublesome a symptom after exposure to bright light in persons who have been operated on for cataract has also been attributed to the action of ultra-violet rays. Erythropsia occurs, however, or may be induced in normal eyes, in which the absorptive capacity of the lens has to be taken into account, and is further said by some not to be prevented by wearing glasses, though this is denied by others. It cannot, therefore, yet be concluded with certainty that ultra-violet rays are solely responsible for this phenomenon.

PROTECTIVE MEASURES

Enough has been said to show that ultra-violet rays are without doubt deleterious to some parts of the eye and are probably so to other parts under certain conditions. Protection of the eyes from these rays is therefore indicated if means can be adopted which are not too inconvenient and which do not seriously interfere with the visible rays. Many observations have been made on the penetrability of various types of glass in common use, and attempts have been made to make a glass which will absorb all the ultra-violet rays without materially reducing the transparency to light. For experimental purposes maximum penetrability to ultra-violet rays is sometimes desirable. Messrs. Schott, of Jena, have manufactured a quartz glass for this purpose called "uviol." Schott's uviol crown glass (U V 3199) transmits rays down to 280 microns. It is therefore rather more transparent to ultra-violet rays than ordinary glass, though it falls very far below quartz in this respect. A few examples of the absorption of ordinary glasses may be given.

Borosilicate Crown Glass absorbs rays below 295 microns; flint glass (0.103) below 315 microns, partially 315-320 microns; ordinary blue glass below 320 microns; ordinary smoked glass below 345 microns; heavy flint glass (0.198) absorbs all rays below 375 microns, and many from 375-400 microns. Heavy flint glass therefore so far as impenetrability to ultra-violet rays is concerned meets most requirements; it is, however, quite unsuited for spectacle lenses on account of its weight.

Special glasses have been devised and placed on the market, said to absorb all the ultra-violet rays, i. e., below 400 microns. Of these the chief are "Enixanthos" glass, Fieuzal glass and "Euphos" glass (Schanz and Stockhausen). All have a greenish yellow tint, varying in intensity.

Schanz and Stockhausen assert that "Euphos" glass absorbs only 5 per cent. of visible light, but Vogt puts the figure at 25 per cent. The latter author points out that the manufacture of experimental glasses which absorb all the ultra-violet rays was accomplished long before Schanz and Stockhausen introduced their widely advertised "Euphos" glass. Eder and Valentin in 1894 made several glasses of this kind, notably a red glass containing copper oxid and others containing iron oxid. They showed that the absorption was much increased

by the addition of lead to the metal. Analysis of "Euphos" glass by Dr. Werder in Aarau showed that it was an iron glass containing lead.

Sir William Crookes has recently made some valuable experiments on the diathermancy and permeability of glasses to visible and ultra-violet rays for the Royal Society Committee. Various green glasses long used in the Palm House at Kew Gardens, specially adopted because of their impermeability to infra-red rays, were examined. One of these, a very dark green glass, originally used in the ferneries, is remarkable for the short length of spectrum it transmits. It is opaque at the red end to rays longer than 579 microns and at the ultra-violet end to all rays shorter than 468 microns. On account of its color and the amount of light which it absorbs it is unsuitable as a protective glass. An almost colorless glass, tinged with didymium, is remarkable. It is opaque at the red end to rays longer than 656 microns just transmitting the hydrogen red. At the ultra-violet end it is opaque to rays shorter than 398 microns. Sir William Crookes suggests that further experiments should be carried out to include glasses tinted with other colored rare earths, as well as such metals as nickel, cobalt, chromium, uranium, etc., and also containing colorless oxids. It is noteworthy in this connection that Eder and Valentin found that ordinary cobalt glass is scarcely more absorptive of ultra-violet rays than ordinary flint or crown glass. It would appear that the almost colorless didymium glass best meets the requirements for protecting the eyes against the action of ultra-violet rays.

CONCLUSION

In any case there can be no doubt that the problem will be solved with relative ease. Much remains, however, to be accomplished in the direction of determining with greater accuracy the physiologic and pathologic potency of these rays. If I have succeeded in arousing some interest in the subject and directing the attention of others able and qualified to extend the researches, my remarks, scattered and disjointed as they are, will not have been wholly vain.

THE PHYSIOLOGIC ACTION, USES AND ABUSES OF ALCOHOL IN THE CIRCULATORY DISTURBANCE OF THE ACUTE INFECTIONS *

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The reputation of alcohol as a cardiac stimulant is as old as our knowledge of medicine. It has been a household remedy for generations and even radical prohibitionists have permitted its use for medicinal purposes. The medical profession in this country have prescribed it freely, and especially in that group of cases under consideration—the acute infections. It has been so securely entrenched in our therapeutic armamentarium that in this country, until very recent years, those who opposed its use in certain acute infections, as pneumonia, were looked on as temperance fanatics. As a preface to the present discussions the therapeutic history of alcohol in Europe during the last century is of interest.

Alcohol was so little used in Germany in the treatment of the acute infections during the middle of the nineteenth century that a physician in Coblentz was held responsible for the death of a typhoid patient for whom alcohol had been prescribed. Shortly after this, Todd, in Dublin, advocated its use in pneumonia and his teachings were quite extensively followed in the British Isles. Somewhat later Binz and his pupils, having demonstrated that alcohol was a food and reduced rather than elevated body temperature, the German clinicians, headed by Von Jurgensen, began using it extensively in febrile conditions. This wave reached its height at the Wiesbaden Congress in 1880, when alcohol was generally lauded as a valuable therapeutic agent in the acute infections. Immediately after this the experimental work of Schmiedeberg and Von Noorden and the clinical experience of Strümpell cast a shadow of doubt over its desirability, and since that time the pendulum has been swinging the other way. This is shown by the lessened consumption of alcohol in some of the large general hospitals in Europe, as, for instance, in the Vienna General Hospital, in which in 1897 $10,000 was spent for alcohol, and in 1905 this had been reduced one-half; and Cabot has shown that there is the same tendency in some of the large general hospitals in this country.

That the amount of alcohol used for medicinal purposes is on the wane does not necessarily prove that it has little value as a therapeutic agent, especially as the change in sentiment has been directly associated with a general prohibition movement.

For our purpose we must approach the subject from a different standpoint, viz.: first, the character and cause of the cardiovascular disturbances in the acute infections; second, the physiologic action of alcohol on the normal mammalian heart; third, the action of alcohol on the cardiovascular apparatus of man and animals suffering from acute infections, and finally, evidence collected from clinical experience.

It is perhaps unnecessary to mention that alcohol has some value as an antipyretic, owing to its inhibitory action in the process of oxidation (von Wendt).[1] Of more importance, and perhaps meriting a word, is its effect in combating the toxemias of the acute infections. There is still considerable difference of opinion on this point, but the recent careful experimental work of Laitinen[2] lends support to the earlier views of Koch and Doyen, that even in small doses it diminishes the bactericidal powers of the blood and lessens the animal's resistance to infection.

NATURE OF CARDIOVASCULAR DISTURBANCES

Regarding the nature of the cardiovascular disturbances in the acute infections, the early clinicians recognized the frequency of weak heart, ascribing it to the fever and parenchymatous changes in the heart muscle, first detected and described by Virchow. Somewhat later Hayem called attention to the interstitial changes and the endarteritis and thrombosis of the coronary arteries, this latter accounting for the sudden deaths met with, especially in diphtheria. Romberg was able to demonstrate a progressive acute myocarditis developing some time after the onset of the infection and continuing for some time after its subsidence. Demich attacked

* Read in the joint session of the Sections on Practice of Medicine and Pharmacology and Therapeutics, of the American Medical Association, at the Sixty-First Annual Session, held at St. Louis, June, 1910.

1. Von Wendt, G.: Ueber die Einwirkung des Alcohol auf die Körper-Temperatur des Menschen, Skand. Arch. f. Physiol., 1907, xix, 171.

2. Laitinen, T.: Ueber die Einwirkung der kleinsten Alcoholmenge auf die Widerstandsfähigkeit Thierischen Organismus, etc., Ztschr. f. Hyg. u. Infectionskrankh., 1907-08, lxiii, 139.

the problem from the physiologist's standpoint and discovered that cardiovascular changes analogous to those present in the acute infections could be produced by section of the cord or by vasomotor poisons, such as chloral or chloroform. This led Naunyn[3] to investigate more carefully the clinical signs and symptoms of the cardiovascular apparatus in the acute infections; his results supported Quincke's theoretical views, inasmuch as the ordinary signs of weak heart-muscle, such as faint heart-tone, feeble pulse, arrhythmia and bradycardia were exceedingly infrequent, the clinical findings pointing more to disturbances in the vascular mechanism. Riegel, with the assistance of the sphygmograph and Maragliano[4] with the plethysmograph, confirmed in the main Naunyn's surmise that vasomotor factors were responsible for the disturbance. That functional disturbance of the vasomotor control plays an important rôle is further supported by the pathologists, who were often unable to find adequate anatomic changes to account for the collapse and sudden death. Furthermore, in many of these cases the conditions of the pulmonary and systemic vessels could best be explained by vasomotor paresis. To this evidence was added the effect of the acute infections in animals. Heidenhain, Charrin and Gley, Raczynski,[5] and especially Romberg and Pässler,[6] studied the effect of a number of the more common micro-organisms on the cardiovascular system. These results are so in accord that it is only necessary to refer to a few of the experiments.

Cultures of a streptococcus obtained from a case of scarlatina, when injected into rabbits, produced cardiovascular disturbance, which can best be considered in two stages. Shortly after the injection, a slight and inconstant vasodilatation could be demonstrated, leading to a slight fall in the pressure; later with approaching death the blood-pressure falls, apparently the result of vasomotor disturbances, as the heart's strength is still good, as shown by the prompt rise in blood-pressure following compression of the aorta.

Cultures of the colon bacillus behaved somewhat differently, impairment of the heart being most pronounced. The pneumococcus and diphtheria bacillus behaved in the same manner as the streptococcus, paralyzing the vasomotor center, leading to engorgement of the splanchnic circulation and underfilling of the vessels of the brain, muscles and skin. Involvement of the heart only occurred late, and then apparently secondary to nutritional disturbances caused by the vasomotor paresis. Especially in pneumococcus infections the heart remained intact to the last, this being in accord with the absence of anatomic changes in this organ after death from pneumonia.

It would appear, therefore, from clinical, anatomic and experimental evidence that the circulatory disturbances in the acute infections are chiefly vascular in origin, the heart being affected to a much less marked degree.

ACTION OF ALCOHOL IN MAMMALS

Regarding the physiologic action of alcohol in mammals, the published results would appear to be quite at variance; these apparent differences can, however, be largely explained by the method of administration and especially the dosage. Considering these points and selecting only those experiments in which methods of precision have been used, we find that the results are really in accord.

A weak solution of alcohol 0.13 to 0.3 per cent. transfused through the mammalian heart has a stimulating effect. The strength of the solution necessary to bring about a certain effect cannot be fixed absolutely. Generally speaking, however, dilutions below 0.13 per cent. are inactive and above 0.3 per cent. act as a depressant. Computing the amount of blood in man as 7 per cent. of the body weight, in order to have the above minimum in the circulating blood, would require about 7 c.c. of absolute alcohol, and for the maximum amount about 15 c.c. of absolute alcohol, or 15 to 30 c.c. of whisky. We must bear in mind that when it is administered by mouth, the delay in absorption would prevent the entire amount ingested from appearing at one time in the circulating blood. When alcohol is administered intravenously to animals, it has been shown that an amount equivalent to 0.1 to 0.3 per cent. in the circulating blood raises blood-pressure and increases the systolic output without necessarily increasing the pulse frequency (Dixon,[7] Rosenfeld,[8] Hasovec,[9] Kochmann,[10] Wood and Hoyt[11] and Bachem[12]). This rise in pressure is rather transitory, ranging from two to twenty minutes. When larger doses are given, all agree that alcohol acts as a depressant. One point of considerable significance is that it is impossible to determine beforehand in any given animal either the minimum or maximum amount required for a stimulating action.

There is still considerable difference of opinion in regard to the cause of the rise in pressure after moderate doses. Whether due to direct stimulation of the heart, the direct effect on the vessel walls, or the effect on the vasomotor center has not been definitely determined. It is certain, however, that large doses of alcohol paralyze the vasomotor center.

CLINICAL EVIDENCE

The clinical evidence relating to the value of alcohol in the acute infections may be divided into two classes, one statistical and of personal impressions, the other careful bedside study, with measured amounts of alcohol, and determination of changes in systolic and diastolic pressure, pulse-rate, etc.

Regarding the value of statistical evidence, it is only necessary to glance back over the therapy in pneumonia during the past fifty years. Laennec believed that he had a specific in tartar emetic; the advocates of venesection had their day and it was only after Skoda demonstrated that the mortality was just as low or lower when bleeding was not used, that the profession discontinued it as a general measure. The supporters of both of these measures furnished statistics that possessed the appearance of evidence. Petrescu treated 2,215 patients with pneumonia with large doses of digitalis, with a mortality of only 1.7 per cent. Aufrecht reported a mortality of 2.6 per cent. in a series of 379 cases, treated with quinin hypodermically. Results equally favorable have been reported after aspirin, creosote and iodids in large doses.

It would appear that, if purely statistical evidence were all that was required to establish a therapeutic fact, there is here sufficient proof. The error lies in the manner in which the statistics have been collected. The mor-

3. Von Dubczanski and Naunyn: Arch. f. exper. Path. u. Pharmakol., 1872, i, 181; 1882, xviii, 49.
4. Maragliano: Ztschr. f. klin. Med., 1888, xiv, 309.
5. Raczynski: Deutsch. Arch. f. klin. Med., 1897, lxiii, 27.
6. Romberg and Pässler: Deutsch. Arch. f. klin. Med., 1899, lxiv 652.
7. Dixon: Jour. Physiol., 1906-07, xxv, 346.
8. Rosenfeld (referred to by Bachem): Centralbl. f. inner Med., 1907, xxviii, 849.
9. Hasovec: Wien. med. Wchnschr., 1901, lix, 457.
10. Kochmann (referred to by Heinz): Handbuch der experimentellen Pathologie u. Pharmakologie, 1905, i, 985.
11. Wood and Hoyt: Univ. Penn. Med. Bull., 1905-6, xviii, 70.
12. Bachen: Centralbl. f. inn. Med., 1907, xxviii, 849

tality of pneumonia is largely dependent on the age of the individual, his previous habits, the severity of the epidemic and the stage of the disease in which he comes under observation. Petrescu used his digitalis treatment on recruits—all young and healthy men—in whom the mortality would naturally be low, as Risell by pure symptomatic treatment reported a mortality of only 1.8 per cent. in 127 patients between the ages of 20 and 30 years. Statistics bearing on the value of alcohol in the treatment of acute infections are too few to permit drawing conclusions, even if free from the objections referred to. Dr. John Hay divided a series of pneumonia patients into two lots by assigning every other patient to one group. Those treated without alcohol showed a mortality of 29.5 per cent.; those receiving alcohol 45.5 per cent. We have heard a great deal of the low mortality from pneumonia in the London Temperance Hospital, but the total number treated is too small to provide evidence.

A more accurate method of approaching the problem is to determine carefully the effect of alcohol on normal individuals and those suffering from the acute infections, and if possible the effect on infected animals. With our present means of taking blood-pressure and estimating the systolic output, we are in a position to determine with a fair degree of accuracy the action of alcohol on the cardiovascular apparatus of man.

A limited number of observations of this character have already been made, and although the results are somewhat at variance, as are the results of these same studies on the hearts of the lower animals, these differences can be explained largely by the dosage and the peculiarity of alcohol, that in the same amounts it does not always affect the cardiovascular apparatus in the same manner.

Studies on normal man show that he reacts to alcohol in the same manner as the lower animals. When given in such quantities that the amount in the circulating blood is not greater approximately than 0.15 per cent., or about 6 c.c. of absolute alcohol, little if any effect on the cardiovascular apparatus can be observed. When the quantity given is equivalent to from 0.15 to 0.3 per cent. in the circulating blood, equal to 6 to 12 c.c. of absolute alcohol, there is as a rule evidence of cardiovascular stimulation, as there appears, after a lapse of fifteen to twenty minutes, a moderate rise in blood-pressure, varying from 10 to 20 mm. (Kochmann, Binz, Wiesenfeld). A larger amount, equivalent to 40 c.c. of absolute alcohol, invariably acts as a cardiovascular depressant. Some investigators have been unable to detect a rise in blood-pressure, even with moderate doses (Cabot, Crile). The great difficulty in both animal and man is to determine in any single individual either the minimum or maximum amount required for a stimulating action.

In this respect it differs from other cardiac tonics, as with digitalis, for instance, we may be certain that a given amount will affect the mammalian heart in a characteristic manner. For this reason alcohol must always be an unsatisfactory therapeutic agent, as a remedy which in moderate doses may or may not have the desired effect, and which in somewhat larger doses develops an unfavorable action, is not to be relied on in an emergency.

Regarding the cause of the rise in blood-pressure following moderate doses, Dixon and Kochmann consider it due to constriction of the splanchnic vessels, the associated dilatation of the peripheral vessels failing to compensate for the splanchnic constriction. Wood and Hoyt confirmed this view, as they have shown by means of the plethysmograph that the peripheral vessels were dilated during the rise in blood-pressure, and inasmuch as the pulse-rate was not materially changed it could best be explained by constrictions of the splanchnics. This constriction of the splanchnic vessels, according to Dixon and Kochmann, is due to stimulation of the vasomotor center.

Some work has already been done on the effect of alcohol on the heart of animals suffering from acute infections. Pässler in the course of his extensive experiments on the nature of the cardiovascular disturbance in the acute infections used alcohol, caffein, camphor and digitalis in order to determine their action under these conditions. The effects of alcohol in a few instances were favorable, but in the majority of trials simply increased the vasomotor paresis, which Pässler determined was the most important circulatory disturbance in the acute infections.

The effects of caffein and camphor were uniformly favorable. Dennig,[13] Hindelang and Grünbaum gave infected dogs alcohol by mouth in a dosage equivalent to 6 c.c. of absolute alcohol in man, and noted after five minutes a very transitory rise in pressure, followed by a fall which persisted for forty-five minutes. When larger doses were given equivalent to 20 c.c. of absolute alcohol in man, the primary rise in pressure did not develop, but from the beginning the effect was a depressing one.

Carefully conducted studies on the effect of alcohol in the acute infections in man have recently been made by Dennig, Hindelang and Grünbaum.[13] The care with which these observations have been made render them more convincing than the entire mass of conflicting, inaccurate clinical reports.

Patients were selected who were not addicted to the use of alcohol, and the systolic and diastolic blood-pressure and pulse-rate were observed for a period of one or more hours after the administration of the alcohol. This series of studies included sixty-two febrile patients, the majority acute infections. The test was applied to successive groups of patients, each receiving larger amounts of alcohol. The first group of ten, including three pneumonia patients, received, well diluted, an equivalent of 6 to 10 c.c. of absolute alcohol. In all but three cases there was a fall in both systolic and diastolic pressure, and the systolic output, as determined by the product of pulse-pressure by pulse-rate, was reduced. This period of cardiovascular depression continued for one and one-half to two hours.

The second group, consisting of nine patients, including five suffering from pneumonia, received from 11 to 20 c.c. Two pneumonia patients reacted by a slight rise in pressure and increased systolic output; in the remaining seven patients the blood-pressure fell and the systolic output was decreased. The third group, including 25 patients, received, well diluted, an equivalent of 20 to 30 c.c. of absolute alcohol. All but five of these patients gave evidence of the depressing action of the alcohol. Included in the five cases that gave a slight rise in pressure were one pneumonia and one erysipelas. Still larger doses, equivalent to 30 to 40 c.c. of absolute alcohol, were administered to a group of seven febrile patients and all reacted by a fall in pressure and lessened systolic output.

Summarizing this experiment, those patients receiving 6 to 10 c.c., 70 per cent., 10 to 20 c.c., 77 per cent., 20 to 30 c.c., 80 per cent., 30 to 40 c.c., 100 per cent., reacted by a fall in pressure and lessened systolic output. These

13. Dennig, Hindelang and Grünbaum: Deutsch. Arch. f. klin. Med., 1909, xcvi, 153.

results on the whole are in accord with those of Cabot, who was unable with varying doses of alcohol to demonstrate in febrile patients a rise in blood-pressure.

The above results, like the animal experiments, impress us with the uncertainty of the reaction of the individual to alcohol; as even in small doses it may, and in large doses invariably does, depress the circulation. It is fair to assume that in these conditions drugs like camphor, caffein and digitalis are of much more value, as they are more constant in their action and much less liable to affect the patient unfavorably.

SUMMARY

In the circulatory disturbances of the acute infections, impairment of the vascular regulating mechanism is more apparent than active disturbance of the heart, and therapeutic measures should be directed toward the prevention or correction of these vasomotor disturbances. Alcohol in man and the lower animals, when taken in small amounts, frequently acts as a cardiovascular stimulant. The exact method of action is still disputed. Larger amounts of alcohol in individuals not addicted to its use, invariably act as a cardiovascular depressant by paralyzing the vasomotor center. The border-line between the amount acting as a stimulant and the amount having a depressing action is variable, and this variability in action renders alcohol an undesirable therapeutic agent.

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ABSTRACT OF DISCUSSION

DR. RICHARD CABOT, Boston: In the use of alcohol in these circulatory disorders there is the difficulty of knowing whether one is dealing with alcohol or with a variety of other substances combined with alcohol in the substance known as whisky. When I began to work with alcohol experimentally I tried to use absolute alcohol and it has been said that the use of absolute alcohol in connection with acute disease is advantageous. So far, I have been unable to get any considerable number of patients to take absolute alcohol, either diluted, flavored or in any other way. They objected so strongly that, in my hands, its use has been impractical. Therefore I have had to use that very uncertain mixture known as whisky and all my results in blood-pressure work with whisky have been, therefore, not properely attributable to the action of alcohol. If anyone has found any way in which he can so flavor absolute alcohol to make patients take it without objection I would like very much to hear of it.

DR. A. JACOBI, New York: Alcohol is indicated in cases in which sepsis is imminent. There is no better antiseptic than alcohol, no purer antiseptic. I am satisfied with American whisky; it does my work. There are cases of sepsis from diphtheria, for instance, in which the patients may be saved by whisky. I speak of those cases of diphtheria so malignant from the beginning as not to be touched by antitoxin. In such cases no dose is too large; it is impossible to cause alcoholic intoxication until sepsis has disappeared. Alcohol is not indicated while active hyperemia prevails.

Differential Diagnosis of Chilblains and Lupus Erythematosus.—Chilblains may be confused with lupus erythematosus, which frequently attacks the hands but is seldom confined to that situation; true lupus erythematosus is also very liable to supervene in patients with chilblain circulation, a fact which has originated Hutchinson's term of "chilblain lupus." There is no vesication with lupus erythematosus; it is uncommon in young people who are the chief victims of chilblains; there is no retrogression of the eruption in warm weather, such as takes place in chilblains, and finally there will almost certainly be other patches of lupus erythematosus elsewhere.—E. G. Little, in the *Practitioner*.

MAGNESIUM POISONING

A STUDY OF TEN CASES *

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INTRODUCTION

The salts of the Glauber salt group are characterized by the difficulty with which their solutions are absorbed from the gastro-intestinal tract. The most important members of the group are the sulphates of sodium and magnesium.

Both Glauber salt and Epsom salt are easily soluble in water. When these salts are taken into the system in dilute form their solutions pass through both the small and large intestines practically unchanged, because the tendency to absorption is so slight that under these conditions the solutions are virtually non-absorbable and because the salts prevent the absorption of any water which was used to dissolve them. Such solutions passing unchanged through the entire bowel produce their effect in part by simply washing out its contents and partly by their local irritant action on the intestinal wall.

In 1884 Hay[1] showed that the tendency to absorption of Glauber salt is increased by raising the concentration of the solution, and when, in the course of his experiments on animals (the intestinal tract of which was free from fluid) he gave the salt by mouth, he found that large quantities of the dry salt produced no catharsis whatever, while the same doses given in dilute solution invariably produced copious movements. The dry salt was gradually absorbed from the gastro-intestinal tract into the blood and was excreted by the kidneys.

Beginning with concentrated solutions of Glauber salt, Gummilewski[2] found that the addition of water steadily diminished the tendency to absorption. Continuing the dilution, he reached a point below which absorption was reduced to a minimum; from this point on there was practically no absorption down to solutions of 1 per cent. and less. With its slight tendency to absorption the dilute salt solution does not normally remain in the intestine long enough to allow an appreciable amount of the salt to be taken up; if, however, a Glauber salt solution cannot readily leave the bowel on account of mechanical obstruction, or because peristalsis is much diminished or absent, then even a dilute solution will undergo gradual absorption, and there will be no catharsis. In the normal bowel the degree of dilution of an active Glauber salt solution has no bearing on the efficiency of the catharsis produced, a 2 per cent. solution being as effective as a solution containing 5 per cent of the salt, provided, of course, a sufficient quantity of the solution is given in each case.[3]

The question whether or not these salts by their presence in the intestine are capable of abstracting water from the system is still undecided, the experimental evidence on this subject being contradictory. According to Schmiedeberg[4] it is very unlikely that such abstraction

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

1. Hay: An Experimental Investigation of the Physiological Action of Saline Cathartics, Edinburgh, 1884, Jour. Anat. and Physiol., 1883, xvi, 391 and 1884, xvii, 222.
2. Gummilewski: Arch. f. d. ges. Physiol. (Pflüger's), 1886, xxxix, 584.
3. Aubert: Ztschr. f. rat. Med., 1852, part 2, p. 225, Buchheim and Wagner: Arch. f. physiol. Heilk. 1854, xiii, 93.
4. Schmiedeberg: Grundriss der Pharmakologie, 1906, p. 413.

should take place under normal conditions. If it ever occurs, Schmiedeberg[5] thinks, it will be most likely to happen when the system contains an excessive amount of water, as in cases of general edema, ascites, hydrothorax, pleurisy with effusion, etc. Certain experimental work which I have done on this subject is corroborative of Schmiedeberg's theory. The results of these experiments are to be published in a later paper, together with the results obtained from a quantitative experimental study of the absorption of Epsom salt given in varying concentrations.

The medical literature gives no information concerning the conditions governing the absorption of magnesium sulphate from the gastro-intestinal tract, but the histories in the cases of poisoning by the internal administration of Epsom salt and the results I obtained in my experiments both give evidence to the effect that magnesium sulphate closely resembles sodium sulphate in every particular relating to its behavior after ingestion. Theoretically, therefore, we should expect to find that concentrated solutions of magnesium sulphate are absorbed in part from the stomach and intestines into the circulation, and that when a sufficient amount of magnesium is present in the circulating blood at any one time magnesium poisoning will result.

When magnesium salts are injected into the blood of animals a very characteristic intoxication is produced.[6, 7] The pulse, at first somewhat accelerated, soon becomes slower and slower, until the heart stops in diastole shortly after paralysis of the respiration. The respiration is affected from the start. The reflex irritability is lost twenty minutes after the beginning of the injection and it may still be absent for an hour and a half after respiration has returned to normal. The peripheral motor nerve endings are paralyzed, but where recovery occurs voluntary movements return long before reflex irritability is restored; 0.3 to 0.5 gm. per kilo body weight, given intravenously, produces death in dogs. Subcutaneous application produces qualitatively the same symptoms, but much larger doses are necessary to cause death. On section of the animals Recke[7] found subpleural ecchymoses and extravasation of blood into the pleural cavities.

The work of Meltzer[8] seems to indicate that magnesium salts may produce intoxication through cumulation. I, too, have found the excretion of magnesium sulphate through the kidneys to take place so slowly that if small doses of Epsom salt in concentrated solution are given at short intervals cumulative poisoning may result.

If magnesium absorbed into the blood in sufficient quantity was the cause of intoxication in the cases I shall describe we may expect these cases to show symptoms and autopsy findings resembling those obtained in animals by the intravenous application of magnesium salts.

Of the ten cases which I shall discuss, reports of seven are to be found in the literature; two of the other three cases I have observed personally; the report of the third case I obtained from the records of the Massachusetts General Hospital.

5. Schmiedeberg: Grundriss der Pharmakologie, 1906, p. 416.
6. Clessin: Ueber die giftige Wirkung der Magnesium Salze Diss., Würzburg, 1881.
7. Recke: Experimentelle Beiträge zur Kenntniss der Wirkung der Magnesia sulphurica, Diss. Göttingen, 1881.
8. Meltzer and Auer: Physiological and Pharmacological Studies of Magnesium Salts, Am. Jour. Physiol., 1905-1906, xiv, 366.

REPORT OF CASES

Case 1.[9]—J. A., 31, Italian, married, second pregnancy, was brought to the hospital on January 22 with a history of having had no movement of the bowels for three days. The patient looked very sick, her respirations were slow and labored, but both the temperature and pulse were only 100. From time to time she vomited yellow watery matter. The uterus, at full term, lay in the right side of the abdomen; it contracted regularly every ten minutes. The left side of the abdomen was puffed up by a distended intestine; there was no visible peristalsis. The examination of a catheter specimen of urine showed the following: Quantity 125 c.c., specific gravity 1,080, no albumin, no sugar. Two glycerin enemas low were given without result. An oil enema gave result from lower bowel. A high turpentine enema gave a good result, relieving the distention. Operation was done for removal of an ovarian cyst. In the urine, which was submitted to me for examination, I found a total of 0.6620 gm. of magnesium, calculated as oxid, and corresponding to 1.95 gm. of magnesium sulphate.

It was impossible in this case to obtain a history of the patient before entrance. Undoubtedly she had been given Epsom salt by her physician, but on account of obstruction of the bowel by the ovarian cyst the salt solution was not permitted to pass out of the intestine; consequently absorption of magnesium sulphate took place. After absorption into the blood the Epsom salt tended to increase the obstipation by paralyzing the bowel.

Case 2.[10]—H. M., 60, chore-man. Diagnosis, chronic bronchitis and emphysema with acute exacerbation; chronic myocarditis.

Patient on entrance passed 30 to 35 ounces of urine, the examination of which gave the following: Odor and color normal, acid, specific gravity, 1,022, albumin, slightest possible trace, sugar absent, no casts. April 14 to 15, the urine rose to 2,940 c.c.; on April 17, it fell to 1,860 c.c., and on April 18 to 480 c.c. On April 14 magnesium sulphate, 1 ounce in concentrated solution every morning was ordered.

April 16, the patient was much more comfortable as a result of rest in bed. He ran an irregular temperature, normal in the morning and up to 101 F., in the afternoon. There were many moist râles and squeaks in the lungs.

April 18 the following information was obtained from Dr. Marks, the junior house officer, and from the nurse in charge of the patient: The patient felt poorly the morning previous. He vomited his salts; his pulse was weak and irregular; he became progressively weaker. His respiration, affected from the start, became more and more labored, and finally resembled Cheyne-Stokes respiration without the periods of apnea. The patient was very cyanotic. His condition seemed so serious that he was placed on the dangerous list.

My attention was called to this case by Dr. Duke, one of the house physicians, who brought me a specimen of urine with a specific gravity of 1,070, and it was in answer to my inquiry regarding the case that I received the above history. I immediately advised the discontinuance of magnesium sulphate for this patient because I was led, from my experience with Case 1, to suspect magnesium sulphate as being the cause of the high specific gravity of the urine. Fortunately the patient had received no salts that morning on account of his weak condition.

April 24 the heart action was less irregular; lungs still showed many coarse râles; temperature still slightly elevated; patient up without ill effects.

The chemical analysis of the 120 c.c. specimen of urine obtained, yielded 0.4813 gm. of magnesium calculated as oxid, and corresponding to 1.42 gm. magnesium sulphate.

In my opinion this case is one of cumulative poisoning produced by a partial absorption of the doses given on

9. Boston Lying-In Hosp. Rec., 1909, cxlvii, 198.
10. Mass. Gen. Hosp. Rec., 1909, decxvii, 71.

April 14, 15 and 16. The salt given on April 17 served to hasten the onset of the attack.

CASE 3.[11]—E. I. B., aged 26, milliner, diagnosis, tapeworm. May 23, on entrance to the hospital patient's urine showed a specific gravity of 1,008, albumin, slightest possible trace, no sugar. Patient was put on liquids without milk, and was given 5 grains of calomel that evening.

May 24, the patient was given 7 ounces of Epsom salt, 1 ounce every hour and a half during the morning, with excellent result. No vomiting.

May 25, patient vomited two doses of the salt. There was nausea the rest of the day. Urine, specific gravity 1,029, albumin slightest possible trace. Stool, normal in color, formed, eggs and segments of tenia present.

May 26, patient vomited two doses of salt. She was allowed to rest as quietly as possible, with the hope of beginning treatment.

May 27, patient vomited her medicines; she refused all food and drugs, except teaspoonful doses of albumin water and was beginning to look worn and haggard. She was fed by rectum and given enemas of salt solution. These enemas she retained well.

May 28, all idea of treatment for worm was given up; patient vomited even water. Physical examination was negative except for acne, which appeared two days previously.

May 30, condition of pernicious vomiting continued. Patient was able to retain only teaspoonful doses of milk and lime water or albumin water, and she often vomited these. The vomitus was green and slimy. The patient looked pale and drawn. The pulse was good, the temperature normal. The patient was sleepy most of the time; she lay with eyes closed and hardly seemed to notice what was going on. The nausea was unrelieved. Patient said she could not move her limbs; she thought she was paralyzed. The patient's face was puffy. She was restless and querulous during the night.

The urine was pale, slightly cloudy, specific gravity 1,013, slightest possible trace of albumin casts present. The urine seemed much diminished; patient thought she had not passed any urine for several days, but the nurses thought that she had passed some urine with her stools and when she discharged nutrient enemas.

May 31, at 5 a. m. the pulse suddenly became weak; a few minutes later the house physician found patient pulseless and of a dirty ashen color. The patient was conscious when the heart was merely fluttering. Death occurred at 6 a. m.

Autopsy (M. G. H., Pathological Records, 1906, p. 273; autopsy 1,694).—Pleural cavity contains a slight amount of pale fluid. Peritoneal cavity contains a moderate amount of pale fluid and several pale yellow fibrin clots. Stomach and small intestinal mucosa shows patches of reddening. Kidneys weigh together 320 gm. The epithelium of the cortical tubules is generally flattened, the lumen of the tubules is rather larger than normal. The interstitial tissue is edematous in places. The epithelium of the glomerular capsule is thicker than usual, but there is no evidence of a glomerulo-nephritis, and there is no increase in interstitial tissue. The appearance of the kidney suggests the action of some toxic substance.

This case is undoubtedly one of magnesium poisoning. Unfortunately the urine was not examined for the presence of the salt, but the specific gravity of the urine of May 25 tells the story. At entrance the urine showed a specific gravity of 1,008; on May 25 the specific gravity was 1,029, although the patient had been taking practically no food. On May 31, when nearly all of the salt had been excreted, the specific gravity was 1,013. I have no doubt that specimens with a much higher specific gravity were passed in the twenty-four hours following the voiding of the specimen which was obtained on May 25. This specimen was passed at a time when the excretion of the salt was just beginning. This is another case of cumulative poisoning.

CASE 4.—Under the title, "Epsom Salt as a Poison," C. Fraser[12] reports a most interesting case of magnesium poisoning. A boy, aged 3½ years, took 1½ ounces of magnesium sulphate, mistaking the salt for sugar. On account of the bitter taste he drank a little milk to wash it down. The child's mother found him soon after this, retching and suffering much pain. He complained of great thirst; his bowels had not moved. The nausea and retching continued all day. At 7 p. m. the pain was very severe and vomiting began. The patient suffered great pain all through the night and vomited at frequent intervals. When Dr. Fraser first saw the child at 2:30 p.m. it was twenty-five hours after he had taken the salts. He found the boy in bed with his face pinched, his eyes sunken and the skin very pale. His mind was clear. Every 2 minutes he had a colicky attack which made him draw up his legs. Temperature 100 F., pulse small, 160. Respiration labored. His tongue was very dry, the papillæ standing out prominently. His thirst was intense. There had been no movement of the bowels in twenty-four hours. The patient had passed only a half ounce of urine in twenty-four hours. Physical examination showed the abdomen to be distended and rigid, and the skin hyperesthetic. Catheterization yielded ½ ounce of bloody urine, no albumin and no sugar, very acid. The patient was weak and was constantly growing weaker. He vomited every few minutes small amounts of greenish-yellow material without any characteristic odor. The bowels were constipated, temperature and pulse the same.

Next day, vomiting was incessant as before, no movement, no urine, pulse uncountable. The abdomen was so distended and tender that it was feared the boy had peritonitis. He was therefore admitted to the hospital for laparotomy. The child was now in complete collapse, his temperature was subnormal, his pulse 160, the abdomen rigid and retracted. Laparotomy was done and two pints of sterile blood-stained serum obtained from the peritoneal cavity. No cause for intestinal obstruction to be found.

The first twenty-four hours in the hospital the temperature was 100.6 F., pulse 170; child was very ill and restless; he vomited frequently; no flatus or feces were passed in spite of frequent enemas. The child complained of intense thirst. Considerable quantities of blood-stained serum continued to drain from the peritoneal cavity. The dressing was changed every four hours. The child became moribund, and albumin water, brandy and rectal salines were not retained.

The second twenty-four hours the child still seemed moribund; pulse uncountable. Normal saline solution was infused into the subcutaneous tissue of the axilla, after which the child improved, obtaining some sleep. There was still some vomiting, which, however, soon stopped. Half grain of calomel was given every hour. Temperature 101.5 F. In the afternoon flatus and feces passed and again after an enema. Catheterization at 4 p. m. yielded 1 ounce of urine. Recovery now followed quickly.

In this case the action of the salt after absorption into the blood had caused paralysis of the intestine. The slow excretion of the salt was also responsible for the almost complete suppression of the urine, the salt, by its great affinity for water, preventing the excretion of water by the kidneys.

CASE 5.—Neale[13] reports the case of a boy, aged 15, who took 1 ounce of magnesium sulphate in concentrated solution on an empty stomach. The physician arrived after twenty-four hours. In the meantime the boy had had three small movements. A few hours after the dose he felt sick and vomited; this condition continued through the night. The next day he tried to work, but had to give up. The vomiting continued at intervals. When the physician came the patient was lying in an attitude of flexion; he was much cyanosed; from time to time he had severe attacks of tetanic spasms,

11 Mass. Gen. Hosp. Rec., 1906, dcxl, 122.

12. Fraser, C.: Lancet, London, April 24, 1909, p. 1174.
13. Neale: Pharm. Jour., 1896, p. 235.

affecting the right side of the face and the right arm. The urine was dribbling. The pulse was imperceptible. He frequently vomited greenish fluid material. His temperature was 105 F. The next day he was better; 40 ounces of urine were withdrawn by catheter. He was well in a week.

In this case there was evidently a paralysis of the sphincter of the bladder. The tetanic convulsions are an interesting symptom. Two of the ten cases showed convulsions.

CASE 6.[14]—A woman in Dundee, Scotland, took 4 ounces of Epsom salt in concentrated solution at one draught. Half an hour later she felt so ill that she sent for a physician. An hour later she died. There was no purging. These are all the facts obtainable in this case, except that death was certified to as due to paralysis from an overdose of salts. There was no inquest.

The cause of death as given in the physician's certificate suggests that there was motor paralysis in this case.

CASE 7.—Luff[15] reports the following case: A woman servant aged 20 was found on her bed in the morning. The bed had not been slept in. Death had occurred some hours before. The autopsy was negative except for the presence of a light-colored semifluid mixture of water and magnesium sulphate in the stomach. Death was stated to have been caused by syncope. There was no purging. The salts had been taken on an empty stomach. It was learned later that the young woman had purchased 1 ounce of Epsom salt the day before from a neighboring apothecary.

CASE 8.—Sang[16] reports the case of a woman of 35 who took 4 ounces of Epsom salt in warm water to bring on the monthly period. Immediately after taking the salts she felt a burning pain in the stomach and bowels. Her breathing became difficult, she had a choking feeling, also a sensation as if the power were leaving her legs. There was no vomiting and no purging. Her pulse was 98 F.; the pupils were dilated; at times there was slight twitching of the face, but complete paralysis rapidly ensued, the patient became comatose and died seventy-five minutes after taking the salt. The radial pulse was felt for two to three minutes after respiration had ceased. There was no autopsy.

This case is one of the most typical of the ten. It shows the paralysis of respiration in a truly classical manner; also the final complete motor paralysis. Like the third of my cases, the victim in this case spoke of a sensation as if the power were leaving her legs. If Patient 3 had lived longer motor paralysis would probably have developed in her case also. In connection with this case it is interesting to note that Lewin,[17] reporting Case 8 in his text-book on toxicology, expresses his doubt of its being a case of magnesium poisoning because the victim was not purged.

CASE 9.[18]—A boy aged 10 was given 2 ounces of Epsom salt for worms. The salt was partly dissolved and partly mixed in a cupful of water. Immediately after swallowing the mixture he staggered and fell. Half an hour later the physician found him breathing slowly and with difficulty. The pulse was imperceptible and the boy was in a condition of collapse. He died in forty minutes. There was no vomiting or purging. The autopsy was negative.

This case is remarkable for the suddenness of the onset, which is strongly suggestive of rapid absorption from the stomach.

CASE 10.[19]—An old man who was rather a heavy drinker was the victim of a practical joke. A number of his companions put a large quantity of Epsom salt into his beer. After he had drunk several pints he was suddenly seized with violent purging. He died forty-eight hours later. The autopsy showed the mucous membrane of the gastro-intestinal tract to be inflamed.

The victim in this case may have died in consequence of the violent purging alone.

14. Brit. Med. Jour., 1891, ii, p. 490.
15. Luff: Brit. Med. Jour. 1891, ii, 490.
16. Sang: Lancet, London, Nov., 7, 1891, p. 1037.
17. Lewin, Lehrbach der Toxicologie, 1897, p. 99.
18. Christison: On Poisons, p. 574.
19. Taylor: Poisons, p. 4.

CONCLUSIONS

In one of these cases only, that reported by Taylor, active purging took place. The victim in this case was given Epsom salt in several pints of beer; the beer served to produce a dilute solution which escaped absorption, and therefore caused powerful catharsis. In Case 3 there is said to have been a good result after the seven doses of Epsom salt, but probably the patient drank with some of her doses of salt an amount of water sufficient to so dilute the salt that it was not absorbed. The patient in Case 4 is reported to have had three small movements. In all the other cases there was no catharsis; the salt, which was taken in concentrated solution, caused paralysis of the bowel after its absorption into the blood. This paralysis was so marked in Cases 1 and 4 that laparotomies were performed.

In all cases there was also a diminution of the urine, which in some cases amounted almost to anuria. The effect on the urinary secretion is due to the presence of the salt in the blood and tissues. On account of its great affinity for water the salt converts a large part of the body fluids into an Epsom salt solution, which, being itself excreted only very slowly, holds the water back and reduces or prevents the secretion of urine.

Among the symptoms observed the paralyzing effect of the salt on the respiration was very prominent; it was spoken of in six cases. Convulsions, described as tonic in character in Neale's case, were seen in Cases 5 and 8. Dilatation of the pupils was observed in Cases 4 and 8. Motor paralysis was seen in Cases 6 and 8, and paralysis of the reflexes seems to have been present in Cases 3 and 8. Vomiting occurred in about one-half the cases.

The most characteristic findings disclosed by operation or autopsy are patches of reddening on the mucosæ of the stomach and intestines and free fluid in the abdominal and pleural cavities (Cases 3, 4, 10).

Fraser's case (4) suggests one very efficient remedial measure, namely, infusion with normal saline solution. The saline infusion given the child undoubtedly saved his life. I think, however, that intravenous application is preferable to intramuscular or subcutaneous infusion, because the relief of the patient will be more prompt and the chances of saving life will be better. The fluid introduced probably acts by diluting the Epsom salt so as to render it less toxic; the more dilute solution is also excreted more rapidly by the kidneys. Meltzer's[20] experiments on animals suggests a specific antagonistic action to magnesium on the part of calcium salts. The intravenous or subcutaneous application of lime salts may therefore be of great value in the tratement of magnesium poisoning.

On account of its paralyzing action on the reflex centers of the cord Meltzer[21] has advised the subcutaneous use of magnesium sulphate in cases of tetanus. Such application should be made with the greatest care only. I can conceive of the remedy being quite as bad as the disease.

20. Meltzer, and Auer: Am. Med., 1905, x, 916.
21. Meltzer: Inhibitory and Anesthetic Properties of Magnesium Salts, Med. Rec., New York, 1905, lxviii, 965.

SUMMARY

1. Magnesium sulphate in bulk or in concentrated solution is absorbed, in part at least, from the gastro-intestinal tract into the blood.

2. If a sufficient amount of the salt is absorbed at a given time poisoning will result; of the ten cases reported six resulted fatally. The symptoms and autopsy findings in these cases agree very well with those obtained in animals after the intravenous application of magnesium sulphate.

3. On account of the slowness of its excretion from the system, magnesium sulphate, given repeatedly in concentrated solution, may produce poisoning by cumulation.

4. In normal conditions of the bowel magnesium sulphate, in proper dilution, is a valuable cathartic; Hunyadi water, for example, is practically a 3 per cent. solution of Epsom salt (magnesium sulphate 1.5 per cent., sodium sulphate 1.5 per cent.)

5. It is not wise to give magnesium sulphate indiscriminately in cases of so-called acute intestinal obstruction, because when peristalsis is much diminished or absent, and in cases of mechanical obstruction of the bowel, even dilute solutions will be absorbed, with consequent danger of poisoning.

6. In cases of suspected magnesium poisoning large quantities of normal salt solution should be given intravenously. Dilute solutions of lime salts given hypodermically may also be of benefit.

7. The subcutaneous use of magnesium salts to produce catharsis, as proposed by Wade,[22] is not only absolutely irrational, but dangerous.

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ABSTRACT OF DISCUSSION

DR. PHILIP S. ROY, Washington, D. C.: Wolfgang Pauli of Vienna, about 1905, in discussing sulphate of magnesia and some of the other powerful purgatives called attention to their danger. Pauli says that the purgative action of sulphate of magnesia is due to its irritating and caustic action on the tissues, also to a rise in blood pressure. The ion relations of the sulphate of magnesia to protein are similar although not so powerful as those of the bichlorid of mercury. Pauli's article impressed on me forcibly the idea that care should be used in giving the sulphate of magnesia.

DR. NATHAN ROSEWATER, Cleveland, Ohio: Magnesium citrate is the form of magnesium salt which I give when I wish to produce catharsis. I prescribe it in concentration equivalent to one and one-third ounces of the salt in from four to six ounces of water. In my experience of many years, I have never seen such effects as described by Dr. Boos. It seems to me that one of the cases he reported should be ruled out because the effect was so immediate; absorption can hardly take place so fast as is indicated in his description of the case. In the other cases too I think that the results must have been due to something else than the magnesium, perhaps to the condition for which the drug was given. In only one or two cases do I believe that the Epsom salts seem to have had anything to do with the poisonous results. I have had a large experience with the use of the salts of magnesium and I have never encountered any untoward effects whatever, and have preferred a concentrated solution. It would require more than the report of two cases to make me believe that this agent is a poison, instead of having merely been used in cases with a toxic or fatal ending.

DR. H. E. DUNLOP, Canton, Mo.: It has been my experience, as I am sure it has been of the majority of physicians present, that magnesium sulphate is not at all toxic, at least in the dose usually administered. Does not Dr. Boos believe that idiosyncrasy had much to do with the results reported in his paper?

DR. D. C. WALT, Little Rock, Ark.: Magnesium sulphate is a valuable agent because of its affinity for carbon which exists in all ptomain bodies. It seems to have the power of neutralizing the toxic value by drawing to its embrace the carbon which is the basic element in poisonous compounds, whether it is the CHNO or CHO group. Nature handles the animal economy on a general plan and that plan is modified or influenced by certain conditions. I dislike to hear anything said against magnesium sulphate because it is one of the most commonly used and cheapest drugs and also one of the most valuable in medicine to-day. With regard to the toxic condition, we must remember that in the snake and in the wasp the toxic effects are based on natural laws, and the toxic effects are regulated by a relation to carbon. I have had a personal experience with this agent as well as in my practice. I have a chronic affection which has been diagnosed as epithelioma, and I have used magnesium sulphate every day for over five years.

DR. LOUIS LEROY, Memphis, Tenn.: The report of these cases is extremely interesting and I think they are sufficiently numerous to warrant consideration. What has been stated does not strike me as being a plea to discredit the giving of magnesium sulphate by any means; we must remember, though, that there are certain cases which result unfavorably after the administration of this agent. There seems to be no question but that a solution of magnesium sulphate cannot produce any toxic effects unless the metal in some way unites itself with some other substance. Idiosyncrasy is not usually a question of concentration, but of substance. It seems that it is only when in great concentration that magnesium sulphate is injurious, so that this would seem to argue against idiosyncrasy as being responsible for the unsatisfactory results. On the other hand, I believe that there is very little general toxic action resulting from the administration of magnesium sulphate. The question then arises: Is there not some other toxic material linked with the magnesium and which is absorbed at the same time through the intestines? That would be my interpretation of the cases reported by Dr. Boos. I should say that his cases were the unusual ones; possibly there was an incompletely digested material, or possibly the production of some ptomain substance, which was absorbed and thus caused the poisonous effect. These possibilities must be borne in mind and the report of but one or two instances of supposed poisoning from the administration of sulphate of magnesium should not be accepted as a statement that this is the sole poisonous agent.

DR. JOHN D. REID, Pilger, Neb.: I should like to report a case which came to my attention last month, but which was not in my practice. The wife of a blacksmith had not been feeling well for several hours. Thinking that it would do her good, the husband gave her a dose of Epsom salts. Within one hour the woman was dead, whether from magnesium poisoning or not I do not know. Her husband was arrested for murder and the preliminary trial is to be held soon.

DR. W. H. PHILP, St. Francis, Ark.: These reports of deaths from the administration of common, everyday salts are interesting, and recall to my mind the case of a woman who was operated on for a minor gynecologic condition. Two or three days afterward she was given a small dose of salts, not more than 4 drams, and she was dead in one and a half hours, after having just such a set of symptoms as Dr. Boos has described. The case was then recognized as one of magnesium poisoning, but this is the first time it has ever been reported.

DR. GEORGE R. NEFF, Farmington, Iowa: I have been using magnesium salts for years, and have never been so successful with them as I have during the last five or six years. I use magnesium internally and externally and expect to use it eternally. I think the sulphate of magnesium is one of the best agents we can use externally for the relief of pain, especially when used with phenol in the proportion of water 16 ounces, salts 1 ounce, phenol 10 drops. In the pleuritic pains in pneumonia, for instance, if this mixture is applied over the chest there are good results. In a knee joint affected with rheumatism, its action is like magic. Think of giving 7 ounces

22. Wade: Med. and Surg. Reporter, 1894, No. 4.

of sulphate of magnesia at one dose! Why should we not get toxic effects from such dosage? It should be remembered that we get toxic effects from medicines, just in proportion as carbon is contained in them. The more carbon the more toxic they are. Epsom salts are eliminative, given in proper doses. Take a case of bronchitis with a continuous hacking cough, and distress; using the following prescription: Epsom salts 3 drams, saccharin 3 grains, tincture of peppermint 10 drops, water 3 ounces, one teaspoonful every hour, the finest results are obtained. It will loosen the dry hacking cough and make a free discharge of mucus and all the symptoms will be relieved. If I had to make a choice of one medicine alone in the whole materia medica to-day, I would choose Epsom salts.

DR. WILLIAM F. BOOS, Boston: I wish it to be distinctly understood that I would not have physicians discontinue the use of magnesium sulphate; I think it is one of the best drugs for the hospital, because it is cheap and efficient in action. But the salt should be given in proper form. Whenever magnesium sulphate is given in greater concentration than 6 or 7 per cent. it is absorbed in part and may produce intoxication. In one case in which the 24-hour urine was examined after the patient had received 1 ounce of magnesium sulphate dissolved in 3 ounces of water (a 33.3 per cent. solution), the urine was found to contain 104 per cent. more magnesium, calculated as oxid, than was normally present. In another instance in which Epsom salt was given in 13.3 per cent. solution, that is, 1 ounce magnesium sulphate in 6 ounces of water, the urine contained 60 per cent. more magnesium than normally. When, however, magnesium sulphate is given in 5 or 6 per cent. solution, that is, ½ ounce magnesium sulphate to 9 ounces of water, there is catharsis and none of the salt appears in the urine.

The last case I reported is probably not one of uremia, because the convulsions in uremia are clonic and not tonic in character. In one case the specific gravity of the 3-ounce specimen was 1,070, it was free from sugar and it contained the equivalent of 1.4 grams of magnesium sulphate. There is no doubt that this was a case of magnesium poisoning and that the high specific gravity was due to the Epsom salt. It is only when we find an excess of magnesium in the urine that we can be certain that the salt was absorbed into the blood and that it was the cause of the intoxication. When the specific gravity of the urine is 1,070 or 1,080, as in the cases reported, or when it is above 1,030 in sugar-free urines generally, this form of intoxication should be thought of. It was only by accident that I found there was such a thing as magnesium poisoning. Magnesium sulphate was injected into the spinal canal by a man in Boston; the patient recovered consciousness about twenty-four hours later. I think it has not been given since. To produce intoxication this agent must circulate in sufficient quantity in the blood. In the cases enumerated, it was absorbed into the blood from the gastro-intestinal tract, and the effect is the same as when it is injected intravenously; in both cases we get symptoms typical of magnesium poisoning. Magnesium sulphate should be given well diluted; 1 to 18 is the proper dilution; that is, ½ ounce of the salt dissolved in 3 ounces of water, followed immediately by a glass of water. Such administration will produce prompt catharsis without absorption. In certain hydremic conditions with edema or with fluid in the peritoneal or pleural cavities, even a concentrated solution is not absorbed. I have the records of one autopsy at the Massachusetts General Hospital. The peritoneal and pleural cavities of this patient contained a small amount of fluid and some fibrin clots, the epithelium in the tubules of the kidney was flattened and the interstitial tissue was edematous; there was no evidence of a glomerulo-nephritis, however. The condition of the kidneys suggested action by some toxic material. We do not know how quickly the salt may be absorbed from the stomach, very little being necessary to cause severe symptoms. Idiosyncrasy must always be considered as a possible factor. I do not believe it wise to give magnesium sulphate in cases of intestinal obstruction; in such cases there is a greater tendency to absorption and the longer the salt remains in the bowel the more will be absorbed.

THE DIFFERENT FORMS OF MEDIASTINAL PLEURISY WITH REPORT OF THREE CASES *

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DEFINITION

By mediastinal pleurisy, anatomically speaking, we understand, of course, an inflammation of the part of the parietal pleura which covers the mediastinum, the anterior as well as the posterior. But when we speak of mediastinal pleurisy as a clinical entity we differentiate it as a particular form of pleurisy, not merely because the mediastinal pleura happens to be inflamed, but because in certain clinical aspects it differs radically from ordinary pleurisy. This difference is, however, present only in those cases in which the inflammation of the mediastinal pleura leads to the formation of an encysted gathering of exudate between the mediastinum and the internal surface of the lung. In the following description I shall therefore confine myself to cases of this kind, with exclusion, for instance, of cases in which the inflammation of the mediastinal pleura is a pleuritis sicca, or, if exudative, occurs in conjunction with inflammatory changes in the rest of the pleura with free communication between the different parts of the pleural cavity.

It is owing to the proximity of the mediastinum and its organs that mediastinal pleurisy differs in symptomatology, in diagnosis, and in prognosis from ordinary pleurisy. The characteristic symptoms of mediastinal pleurisy vary, however, according to what part of the mediastinal pleura is involved. A gathering of fluid in front of the right pulmonary peduncle does not give the same symptoms as one in front of the left, and both these forms of mediastinal pleurisy differ in their clinical manifestations from those produced by a gathering of fluid behind the pulmonary peduncle, which, on the other hand, is liable to give the same symptoms, no matter whether it is located on the left or the right side of the posterior mediastinum. We may therefore distinguish between three forms of mediastinal pleurisy: (1) pleuritis mediastinalis anterior sinistra, (2) pleuritis mediastinalis anterior dextra and (3) pleuritis mediastinalis posterior.

It will be my endeavor in this paper to show the justification and the importance of such a distinction.

PLEURITIS MEDIASTINALIS ANTERIOR SINISTRA

Out of the eleven cases reported of left anterior mediastinal pleurisy, seven are described with sufficient detail to give us a comprehensive picture of this form of pleurisy.

ANDRAL'S CASE 1.†—A man of 29, infected with tuberculosis, suddenly had an acute pain between the left breast and sternum with intense anxiety; the countenance was pale, the breathing short and hurried, the pulse hard and frequent. Six days later, a dulness was found between the left breast and the sternum, where respiratory murmur was absent and heart-sounds were weak. The dulness spread over almost the

* Read in the Section on Practice of Medicine of the American Medical Association, at the Sixty-first Annual Session, held at St. Louis, June, 1910.

† Owing to lack of space, this article is abbreviated in THE JOURNAL by omission of the historical review and the references to literature. The article appears in full, however, in the Transactions of the Section and in the author's reprints.

entire precordial region and Andral made the diagnosis of effusion in the pericardium. The patient died on the twenty-first day. At the autopsy, the pericardium was found normal, but immediately behind the sternum and the anterior ends of eight or nine left ribs was found a vast cavity formed entirely at the expense of the pleura; it was filled with thick pus and lined with thick false membranes which were studded with numerous tubercles. In discussing this case, Andral points out that there was not much dyspnea, except at the commencement, due to the intense pain, and that death was occasioned not by embarrassment of the respiration, but by the infection, tubercles having been found in most of the internal organs.

RICHARDIÈRE'S CASE.[8]—A woman had been sick for two months, complaining of constant oppression and attacks of dyspnea. On admission to the hospital, flat percussion-tone was found over the entire left anterior side of the chest with absence of breath-sounds and vocal fremitus and with distant heart-sounds. The oppression grew more intense and she died a month later suddenly. Autopsy revealed a pleuritic abscess containing 700 or 800 gm. of pus, reaching from the middle of the sternum to the left axillary line and completely surrounding the anterior and left side of the pericardium, which was the seat of an intense inflammation.

Pel[10] gives an excellent report of a case:

PEL'S CASE.—A man of 32 had never been sick until he contracted left-sided pneumonia four weeks before admission to the hospital, Jan. 1, 1884. He complained of pains in the chest and dyspnea. Physical findings were: slight cyanosis, left side of chest bulging and its respiratory excursions diminished, apex-beat not perceivable, a flat tone anteriorly from the clavicle almost down to the costal margin, with absence of breath-sounds and of vocal fremitus; absolute cardiac dulness reaching 1 cm. beyond the right sternal line, heart-sounds distant, clear, and heard best at the right sternal line; posteriorly over almost the entire left side of the chest, flatness and absence of breath-sounds and of vocal fremitus. An incision was made between the eighth and ninth ribs in the left scapulary line and a large amount of pus escaped. The patient improved but slightly, the temperature remained high, he had a chill, the pulse was rapid, irregular, weak, fairly full. A week later, there was a distinct bulging of the precordial region, the apex-beat was not perceptible, the anterior area of flatness extended from the upper margin of the third left rib to 2 cm. beyond the right sternal line and 3 cm. beyond the left mammillary line. The outline of the flat area was triangular; no pericardial rub was heard; and heart-sounds were barely audible. A diagnosis of pericarditis exsudativa purulenta was made. After an incision had been made in the third interspace outside of the parasternal line, about one and a half or two liters of yellow pus came out in a stream which was synchronous with the heart-action. The introduced finger felt the heart beating. The patient improved immediately, but nevertheless, he died three days later of pyemia. The autopsy showed that there was no pericardial effusion, but there were two separate encysted empyemas, one posteriorly which had been opened at the first operation and was in process of healing and the other on the inner side of the left lung, between the lung and the heart, surrounding the left heart and reaching from the second rib to the diaphragm.

GRANCHER'S CASE 1.[11]—An 11-year-old boy, when brought to the hospital, had the classical signs of a large effusion in the left pleura; posteriorly a flatness reaching to the spine of the scapula, with greatly diminished vocal fremitus and with very distant respiration below and bronchial respiration over the middle third of the left lung; anteriorly an area of tympanism below the left clavicle and, below this zone, a flatness which reached downward to the space of Traube, which was only slightly encroached on, and outward to the side of the chest, with diminished vocal fremitus and with bronchial respiration; the heart was displaced toward the right and the maximum of its pulsations was perceived at the right edge of the sternum. Although these symptoms would indicate a pleurisy with free fluid, Grancher made the diagnosis of left anterior mediastinal pleurisy for several reasons. There was no deformity of the thorax, *i. e.*, no enlargement of the left side of the chest, no dilatation of the left costal interspaces, no deviation of the lower end of the sternum toward the left. The maximum dulness was noticed, not behind, but in front and extended 1 cm. beyond the right sternal line, and even on the manubrium sterni the percussion-tone was flat. Furthermore, the displacement of the heart was very exaggerated; there was also a deep cyanosis of the lips and a marked collateral circulation on the chest. Nevertheless, the dyspnea was but slight. As it thus was evident that it was the anterior mediastinum that had yielded to the pressure of the fluid and not the thoracic wall, Grancher concluded that the fluid was not free but encapsulated between the mediastinum and the lung. A puncture was made (Grancher does not mention where it was done) and 850 gm. of serous fluid were withdrawn. The patient recovered.

GRANCHER'S CASE 2.[12]—This also concerned a child. The diagnosis of pericarditis with effusion had been made because of an enormous bulging of the precordial region with dulness extending from the sternum to the left side of the chest; the child was almost blue and was in imminent danger of syncope as soon as it was moved in the bed. Grancher considered the dulness too extensive for a pericarditis and found that the heart-sounds were not so obtuse and distant as is usual in pericarditis; they were heard quite well, but with their maximum intensity at the right edge of the sternum. Therefore, without asserting the integrity of the pericardium, Grancher concluded that probably mediastinal pleurisy was present. Puncture was made in the left axillary line and 950 gm. of serous fluid were withdrawn. The heart came back to its normal position, the dyspnea disappeared in a few hours, and the child recovered.

THOINOT AND GRIFFON'S CASE.[13]—These authors have given an incomplete report of the case of a 45-year-old woman who was brought to the hospital on the fifth day of her disease, with the typical history of a pleuropneumonia of the left side. She suffered intensely from pain and dyspnea. Her countenance was pale and she was evidently deeply infected. There was distant bronchial respiration, Traube's space was sonorous, and the heart was hardly displaced. She died on the seventh day of her illness. At the autopsy a small collection of pus was found between the left lung and the anterior mediastinum; there were thick fibrinous membranes; the lower left lobe was consolidated. Pneumococci were found in the pus.

DODD'S CASE.[14]—This was one of a 57-year-old man who about a month before had had pneumonia of the left lower lobe and thereafter had developed the usual symptoms of empyema. Percussion in the front gave dulness from the third left rib downward and from the edge of the sternum to the mammillary line, with absence of respiratory sounds; the apex-beat was closer to the sternum than normally; there was a place of tenderness as large as the end of a finger at the junction of the fifth rib and the sternum. Behind, there were dulness and absence of respiration-sounds from the seventh rib downward. Resection of the eighth rib was made in the midaxillary line and 250 c.c. of pus was evacuated. The patient improved only temporarily, the left lung gradually expanded, and vesicular breathing was heard to the base of the lung. But anteriorly, the only change to be found was that the apex-beat had returned to within half an inch of its normal position. He died twelve days after the operation from embolism in the left side of the brain. At the autopsy, an abscess with 300 c.c. of pus was found between the pericardium and the left lung and was in relation with the anterior wall of the chest only in the fourth intercostal space from the mammillary line for about 3 cm. toward the sternum. A needle in the fourth interspace, 1 cm. inside the mammillary line, would probably have found the abscess without entering the pericardium.

From the reports of these cases we find that the left anterior mediastinal pleurisy corresponds closely to ordinary exudative pleurisy in regard to etiology and pathology and to general symptoms, *i. e.*, those due to the infection. It is usually caused by the tubercle bacillus or the

pneumococcus; the exudate is either serous or purulent, the latter being accompanied with formation of pseudomembranes. It is rare to find cases of left anterior mediastinal pleurisy without complications. Tuberculosis of other organs, a pericarditis, an empyema of another part of the left pleura, a pneumonia of the left lower lobe, an embolus of the brain are the complications which have been recorded in the reports of these cases.

The left anterior mediastinal pleurisy owes its distinctive features, of course, to the localization of the pathologic process. In some cases the entire height of the left anterior mediastinal pleura is affected; in other cases the pathologic changes are confined to the lower part of it. There is no case on record in which the inflammation has spread above or below the pulmonary peduncle to the posterior mediastinal pleura, but in some cases the anterior median parts of the left diaphragmatic and parietal pleuræ have also been involved. At times the larger part of the exudate is covered by the anterior edge of the left lung, leaving only a small part of it in relation to the thoracic wall, underneath and close to the sternum, but usually, if the effusion is somewhat large, and particularly in case of a serous exudate, the edge of the lung is displaced more or less outward, exposing a larger part of the exudate.

Of the subjective symptoms the pain is the most characteristic one, being localized behind the sternum or between the sternum and the left breast; it varies greatly in intensity and is not always present. The degree of dyspnea, of oppression, of anxiety, seems to be more proportionate to the severity of the pain than to the amount of exudate. Thoinot and Griffon's patient suffered intensely from pain and dyspnea, although the amount of pus was small, while in Grancher's first case the dyspnea was very moderate, although the effusion measured nearly 1,000 c.c

The objective phenomena vary, of course, according to the size of the effusion. A small effusion will cause an area of flatness extending only from the left sternal line to the left nipple-line, with diminished or absent vocal fremitus and respiration-sounds over the flat area, with only slight or no displacement of the heart, and with no cyanosis. If the effusion is large, it may cause a bulging of the precordial region and the flat area may reach from several centimeters beyond the right sternal line to the left axillary line and upward to the second rib, and we may find a flat percussion-tone even over the manubrium sterni. In these cases the anterior mediastinum is more or less displaced to the right; the apex-beat may be seen close to the sternum, but is usually not perceivable; in several cases the heart-beat has been noticed at the right sternal line. As a consequence of the displacement of the heart, more or less deep cyanosis may appear, but it seems to be of rare occurrence; only in one case was an engorgement of the thoracic veins noticed, the disturbance of the circulation being due probably to interference in the right auricle and the superior vena cava. To explain the cyanosis in cases of left-sided pleuritic effusion, as some authors do (Moxon[37]), as a result of pressure on the left auricle with subsequent stasis backward and dilatation of the right heart, seems scarcely to be accurate, as only the auricular appendage is covered by the left mediastinal pleura, and consequently liable to be exposed to pressure, while the rest of the left auricle is in relation to the organs contained in the posterior mediastinum. The respiration-sounds and vocal fremitus over the dull area are, as usually in pleurisy with effusion, diminished or absent. The heart-sounds are obtuse and distant and more clearly heard at right sternal line than to the left of the sternum.

The prognosis in left anterior mediastinal pleurisy is more serious than in pleurisy with free exudate because of the greater pressure to which the heart is exposed, and perhaps also because of greater danger of a complicating pericarditis or cerebral embolus.

In regard to the diagnosis of left anterior pleurisy, the main difficulty is to differentiate it from an exudative pericarditis, from a pleurisy with free exudate, and from an anterior suppurative mediastinitis.

The differential diagnosis between exudative pericarditis and left anterior mediastinal pleurisy is no doubt difficult. "Handelt es sich doch hier," as Pel says, "um die Unterscheidung einer Pericarditis suppurativa interna von einer Pericarditis suppurativa externa." We find in both a precordial dulness or even bulging, an apex-beat located inside the left border of the dull area, or entirely absent, distant heart-sounds; the triangular shape of the dull area usual in pericarditis has been observed also in a case of left anterior mediastinal pleurisy; cyanosis occurs in both; the character of the pulse is of no assistance in making a diagnosis. There is, however, one sign which if present is characteristic for left anterior mediastinal pleurisy, as Grancher has already pointed out, namely, that the heart-beat is perceived with its maximum intensity and the heart-sounds are heard most distinctly near the right sternal edge. It indicates that the heart has been pushed toward the right by a pleuritic effusion and not removed from the proximity of the anterior chest wall by the interposition of a pericarditic exudate. Other signs may be of help for the diagnosis. A well-marked border-line between the flat area and the resonant area over the left lung speaks in favor of a pericarditis. The presence of Skoda's sign below the left clavicle, or of signs of congestion or of inflammation of the left lower lobe, or of signs of another encysted pleuritic effusion speak in favor of a mediastinal pleurisy.

Left anterior mediastinal pleurisy might be mistaken for a pleurisy with free exudate under two conditions. One of them is that, in addition to the left anterior mediastinal pleurisy, another encysted gathering of fluid exists in the lower posterior part of the left pleura; a puncture will then be made posteriorly and the fluid withdrawn, but the symptoms from the anterior part of the chest will remain unchanged and a correct diagnosis will be possible. The other condition is that, in a case of left anterior mediastinal pleurisy, the left lower lobe is congested and surrounded by a thin layer of fluid, as occurred in one of Grancher's cases; a correct diagnosis was here made, when by careful observation, admirable for its accuracy, it was demonstrated that it was the mediastinum and not the thoracic wall that had yielded to pressure from the fluid.

The differentiation of left anterior mediastinal pleurisy from anterior suppurative mediastinitis (Hare,[39] Christian[38]) also offers some difficulties, at least under certain conditions. When a mediastinitis is due to a trauma or to a sternal osteomyelitis or to a mediastinal lymphadenitis, the diagnosis might be quite clear; but, when, as occurs in rare cases, it is caused, through extension of the inflammatory process, by a pulmonary affection or by a pleurisy or a pericarditis, it seems hardly possible to arrive at a definite diagnosis.

A skiagram might be of service for diagnosing this kind of cases, but no mention is made of its use in any of the reports which have been published hitherto.

PLEURITIS MEDIASTINALIS ANTERIOR DEXTRA

While no reports of right anterior mediastinal pleurisy could be found in the literature, two cases of this kind have come under my notice.

CASE 1 (personal).—Adolph N., a tuberculous subject, aged 37, on June 12, 1906, suddenly became very sick, had a severe chill and a very acute pain which he located in the right side of the chest, especially between the sternum and the right nipple, and which made it extremely difficult for him to breathe. He was admitted to the Augustana Hospital June 18, 1906. Temperature 102, pulse 86 and respiration 24. His lips were dark blue; both head, neck, thorax and upper extremities were deeply cyanotic, and the veins in these regions were engorged. Amphoric breathing and large crackling rales were heard below the right clavicle. The percussion-tone was dull over the lower anterior part of the right lung, with distant breath-sounds of vesicular character and only faintly perceptible vocal fremitus. Over the posterior part of the right lung, there was normal resonance and vesicular breathing. A dulness over the corpus sterni I ascribed to a dilatation of the right heart. Over the lower anterior and lateral part of the left lung, there were signs of a small effusion, probably remaining from an attack of pleurisy he had had a year previously. The apex-beat could not be located.

During the following three weeks, I tried in vain to determine the locality of the effusion, of the presence of which I had no doubt. I made numerous punctures over the lower anterior part of the right lung, all with negative results. A consulting physician was called, but could find no evidence of a gathering of fluid. In the meantime the patient suffered agonies, was deeply cyanotic, was practically gasping for breath both night and day, had an extremely severe pain in his chest, which made frequent hypodermic injections of morphin necessary. He could not eat on account of the dyspnea. The temperature usually remained at about 98 or 99, but occasionally rose to 101 F.; the pulse was not very rapid, varying between 73 and 100 a minute; the respiration varied between 16 and 28 a minute.

Finally on July 13, finding a very narrow margin of flatness and total absence of breath-sounds and vibrations along the right edge of the sternum, I introduced the exploratory needle in the fourth right interspace about 1 cm. from the sternum and aspirated a syringeful of serous fluid. Dr. A. J. Ochsner was asked to operate, partly because I did not like to introduce a large aspirating needle where I had made the exploratory puncture, on account of the proximity of the heart, and partly because I considered a continuous drainage necessary to relieve the condition permanently. The operation was performed the same day. After the sternal end of the fifth rib had been resected and the pleura had been incised, the lower anterior corner of the lung was seen in the wound and was seemingly normal. A finger was introduced around the anterior edge of the lung and as soon as it was pushed down between the lung and the mediastinum, there was a gush of serous fluid, the amount of which was estimated at about 500 c.c.

After the operation the cyanosis rapidly disappeared and the dyspnea was greatly relieved. Unfortunately, however, the patient was so exhausted that he failed to pick up and died July 20, 1906, a week after the operation. Autopsy was not permitted.

CASE 2 (personal).—George G., aged 30, a laborer, was admitted to the Augustana Hospital March 18, 1908. He had been well up to March 15, when he suddenly became sick. On admission he complained of a moderate pain in the right side of the chest, coughed, but expectorated only some frothy mucus; at no time did he raise any typically pneumonic sputum. He had to sit up in bed to get air, and evidently suffered greatly from dyspnea. Temperature 103.3, pulse 156 and respiration 48. His lips were dark blue; both head, neck and upper extremities were deeply cyanotic, and the veins in the cyanosed parts were engorged. The apex-beat was seen two finger's breadth outside the left nipple-line; a dulness over the corpus sterni I ascribed to a dilated right heart; the heart-tones were clear. The left lung was normal except that the respiration-sounds were increased. Over the entire front part of the right lung there was marked dulness, increasing downward, and also over the lower half posteriorly; the upper posterior half was resonant. The vocal fremitus was increased over the upper part anteriorly, slightly diminished below. Bronchial breathing was heard over the entire front part of the right lung, close to the ear over the upper part, and more distant over the lower.

On March 19 venesection on right arm was made, as it was thought possible that the cyanosis was due to dilatation and insufficiency of the right heart. A quantity of dark blood (300 c.c.) was removed; no improvement. March 20 an exploratory puncture was made in the fifth interspace, just outside the right mammillary line, also with negative result. The next day I made a second puncture in the same interspace, but inside the mammillary line, also with negative result.

March 23, his condition was practically unchanged, the dyspnea was very severe, the cyanosis deep and the pulse was at times irregular. On examination I found a small area close to the right sternal edge where the dulness was particularly marked, the breath-sounds were barely audible, and the vocal fremitus was totally absent. I had observed the same phenomena on the day of his admission, but explained it as being due to a dilatation of the right heart. As, however, no other signs of such a dilatation were observed, I became convinced that an effusion between the right lung and the mediastinum was causing both the displacement of the apex-beat and the cyanosis as well as flatness and absence of both fremitus and breath-sounds. The exploratory needle was therefore introduced for the third time, but now in the fourth interspace, between the parasternal line and the sternal edge. A turbid, yellowish fluid was obtained. The same day the patient was operated on by Dr. E. H. Ochsner. The sternal end of the fifth rib was resected and about 500 c.c. of fluid removed. The cyanosis soon disappeared after the operation and the dyspnea was gradually relieved. The draining fluid gradually turned into thick yellow pus, the wound granulated and healed, and on June 8, 1908, the patient was discharged after having made an uninterrupted recovery. I regret to say that no effort was made to ascertain what micro-organism was the cause of the pleurisy. I believe, however, that I am justified in saying that it probably was a case of primary pneumococcus-infection of the pleura with secondary or simultaneous congestion of the lung.

From the reports of these two cases of right anterior mediastinal pleurisy, it will be seen that they, in many respects, showed a similarity with cases of left anterior mediastinal pleurisy. They were caused, one by tuberculosis, one by pneumococcus infection. In one of them the exudate was serous, in the other purulent. Most of the symptoms were like those caused by left-sided pleurisy: pain, most severe between sternum and right breast, dyspnea and oppression in proportion to the pain, a flatness along the right sternal edge and over the corpus sterni, a dulness over a smaller or larger part of the right lung, due to simultaneous congestion, absence of breath-sounds and vocal fremitus over a narrow flat area close to the sternum, and displacement of the heart.

In but one respect, I believe, the two cases of right anterior mediastinal pleurisy differed materially from those on the left side, namely, in regard to cyanosis, and this difference is sufficiently great, in my opinion, to form one of the reasons why the right and the left anterior mediastinal pleurisy should be distinguished as two different forms. In the two cases observed by me, the most striking feature was the cyanosis, which was

extremely deep. Furthermore, the cyanosis was limited to head, neck, thorax and upper extremities and the veins in these regions were engorged. In Andral's and Thoinot's cases of left anterior mediastinal pleurisy, the countenance was pale; in Pel's case there was slight cyanosis; in Richardière's and in Dodd's cases no mention was made of the complexion and consequently one is justified in assuming that, if cyanosis was present, it was not marked. Only in Grancher's two cases was the cyanosis deep, and only in one of these were the thoracic veins dilated. Both patients were children with very large effusions.

It is only natural that cyanosis should be an early symptom in right anterior mediastinal pleurisy, when one considers that it is the right auricle and particularly its upper extension, the superior vena cava with its easily depressible walls, that are directly covered by the right mediastinal pleura, and are the very first organs that will be exposed to pressure from an effusion gathering between the right lung and the anterior mediastinum. The intrathoracic part of the inferior vena cava seems to be too short and located too far backward to suffer from pressure from the exudate; at least in my two cases there were no signs of passive congestion below the thorax. On the left side conditions are somewhat different. An effusion gathering between the left lung and the anterior mediastinum will cause pressure on the right and left ventricles; but as their walls are rigid, no disturbance of the circulation will arise until the effusion becomes large enough to displace the heart considerably toward the right and thus cause, secondarily as it were, a pressure on the right auricle and the superior vena cava.

Another reason, however, for differentiating the right and the left anterior mediastinal pleurisy as two distinct forms, is the difference in their differential diagnosis. While either of them could be mistaken for a pleurisy with free exudate or a suppurative anterior mediastinitis, it is only a left anterior mediastinal pleurisy that could be confounded with pericarditis and only a right anterior mediastinal pleurisy that could be confounded with a dilated right heart and with any disease causing a direct pressure on the commencement of the superior vena cava.

Right anterior mediastinal pleurisy and dilatation of the right heart both produce dulness over the sternum extending beyond the right sternal edge, displacement of the apex-beat toward the left, and cyanosis. It should not, however, be difficult to differentiate these two conditions because, when these three symptoms, dulness, displacement of apex-beat, and cyanosis are as pronounced as they were in the two reported cases and if they are due to dilatation of the right heart, other symptoms of dilatation must necessarily also be present, namely, epigastric pulsations, tricuspid murmur, and venous pulse, symptoms which are not found in right anterior mediastinal pleurisy.

Any pathologic formation causing pressure on the superior vena cava may give symptoms similar to those of the right anterior mediastinal pleurisy; but particularly mediastinal sarcoma and carcinoma, aneurism of the aorta, and anterior suppurative mediastinitis should be differentiated from this form of pleurisy. The history of the disease, its mode of onset, as well as its course, the presence or absence of signs of infection, among which a high leukocytosis is of special importance, the presence of coordinate symptoms, are factors which, when carefully considered, should be sufficient to insure a correct diagnosis. The possibility of other mediastinal tumors or inflammatory products being present (Hare[38]) should be kept in mind, as a lymphadenitis, a mediastinal dermoid cyst, a syphilitic mediastinal gumma (Buttino[40]), a lipoma, a metastatic cancer, an endothelioma, a branchioma (Duret[41]), a chrondroma, a fibroma, hematoma, a fibrous infiltration, enlargement of mediastinal glands or of thymus, etc.

PLEURITIS MEDIASTINALIS POSTERIOR

Eleven cases of posterior mediastinal pleurisy have been previously reported.

Andral's Case 2 (Cited from Dieulafoy[42]).—A 37-year-old man entered the hospital June 14, 1822, showing signs of pulmonary phthisis in the last stage. June 17 he had a vomica, expectorating a large amount of pus. He died July 8, 1822. At the autopsy, numerous tuberculous cavities were found in both lungs. There was a perforation the size of a pea of the posterior part of the right main bronchus, leading into a cavity which was large enough to admit an orange. This cavity was bounded exteriorly by the right lung, posteriorly by the ribs, interiorly by the spinal column and the posterior mediastinum, anteriorly by the right pulmonary vessels.

Dieulafoy's Case 1.[42]—A 44-year-old woman caught a cold and had chills; next day she began to have a cough, which soon became paroxysmal and she was considered to have whooping-cough. After two months she became hoarse, a few days later stridor appeared, and she had violent attacks of suffocative cough, which was accompanied, if coming on shortly after a meal, by vomiting, and followed by the expectoration of a whitish, frothy sputum. Finally it became difficult for her to swallow. She entered the hospital three months after the beginning of her illness. On examination, no abnormal signs from the chest were found, the temperature was normal, but the larynx and the trachea deviated toward the right, the false vocal cords were edematous, there was no paralysis of the recurrent nerve. She gradually grew worse, the stridor became still more pronounced, the dyspnea was continuous. A week after her admission, she had a chill, followed by fever, and a few days later she had a vomica and expelled, during twelve hours, 200 gm. of yellow pus, which contained pneumococci. The diagnosis of posterior left mediastinal pleurisy was made. The symptoms gradually disappeared and the patient recovered.

Dieulafoy's Case 2.[42]—A young, healthy man suddenly became sick with chills, oppression and dyspnea, which at first came on only on exertion, but soon became permanent and was aggravated by the slightest effort. A few days later he began to have fits of paroxysmal, dry cough, resembling whooping-cough, and at the same time his voice became husky. Four weeks later, deglutition became difficult and only liquids could be swallowed. Five weeks after the beginning of his illness, he was admitted to the hospital. A loud inspiratory stridor was heard, there was depression of jugulum and epigastrium at each inspiration, the veins of the upper part of the chest were dilated. At the level of the third and fourth vertebræ a small area of dulness was found between the scapula and the spine on the left side, over which area bronchial respiration and a few râles were heard. On the day after his admission he had a vomica and expectorated about 80 gm. of thick greenish pus. No bacteria were found, but the patient's blood-serum agglutinated pneumococci. He gradually recovered completely.

Bretton's Case.[39]—A 47-year-old laborer, an alcoholic, in May, 1904, began to complain of palpitations and dyspnea on exertion, and shortly afterward of severe retrosternal pains and precordial angina with sensation of faintness and with vertigo. On his admission to the hospital in June, 1904, he was intensely anemic, had no fever, remained in dorsal position, in which his respiration was free, while any other position caused oppression and dyspnea. Physical examination of the lungs revealed only a slight dulness close to the spine on the left side. The apex-beat was seen 1.5 cm. outside the

nipple-line; palpation gave the impression of violent cardiac contractions; the closure of the aortic valves was accentuated and was heard also to the right of the spinal column; the pulsations in the crural arteries were asynchronous. Gradually a dulness in the aortic region appeared, slowly increasing and spreading along the right sternal edge, and, at about the same time, a murmur could be heard in the third right interspace which at first was single, systolic, soft, and afterward became double. Radioscopy showed a dark zone close to the left lateral aspect of the spinal column at the level of the mediastinum. The patient began to have a slight cough, but still no fever. The diagnosis of aneurism of the thoracic aorta was made. The patient gradually grew worse and in July, 1904, new symptoms appeared: cachectic discoloration of the skin, dilatation of the thoracic veins, hoarseness and dysphagia. The diagnosis of aneurism was abandoned for one of neoplasm of the posterior mediastinum. The patient died August 1, 1904, in extreme dyspnea. Three days previous to death the temperature was febrile.

At the autopsy a pleural abscess containing 300 or 400 gm. of yellow pus was found between the posterior mediastinum and the left lung, closely adherent to the descending aorta. The adjacent pulmonary parenchyma showed traces of subacute inflammation. The pericardium contained 200 gm. of serous fluid, the myocardium was hypertrophic, no valvular lesions were found and the aorta was normal, excepting a thickening of its membranes where it adhered to the abscess. Amyloid degeneration was found in the liver and kidneys.

AUTHOR'S CASE.—One case of posterior mediastinal pleurisy has come under my personal observation: Nils L., aged 35, a teamster, contracted pneumonia in April, 1897. After five days he began to improve, but after another week or two he gradually became worse again, had severe chills at irregular intervals, expectorated yellow pus, usually only small amounts, but a few times by the mouthful; in fact, so much that it came out both by nose and by mouth; he was losing in weight and the feet began to swell. When this condition had lasted about two months, I was called to see him. He was then emaciated, temperature 102, pulse 92, respiration 22 to the minute; he complained of slight dyspnea, but could breathe comfortably when in bed. There was dulness over the entire left lower lobe posteriorly; bronchial respiration was heard over the lower part of the scapula and the breath-sounds were faint and distant over the inner and lower parts of the left lung posteriorly. The urine contained a small amount of albumin and there was a considerable swelling of the feet (beginning amyloid degeneration of the kidneys). A few days later, on closer examination, I found a narrow vertical zone parallel with and close to the spine, where the percussion-tone was flat and where breath-sounds and vocal fremitus were absent. An exploratory puncture was made in the seventh costal interspace, fairly close to the spinal column; yellow pus was obtained, which contained numerous pneumococci. The next day, after the patient had been anesthetized, two more exploratory punctures were made, more laterally and lower down than the first one, as it was thought advantageous, in order to insure free drainage, to have the opening laid as low as possible; but when the result was negative in both instances, a resection of the eighth rib was made, close to the spine and about 250 c.c. of pus emptied out of the encapsuled cavity. The wound gradually closed, the patient recovered and gained 50 pounds in weight in less than half a year. No symptoms of pressure on the mediastinum and its organs were present in this case.

OTHER CASES.—Chauffard [20] reported four cases of posterior mediastinal pleurisy with serous effusion. In none of them were there any pressure-symptoms. The diagnosis was based on the presence of a narrow, vertical dulness along the spine, with the usual symptoms of effusion. Exploratory puncture was made in three of them with positive results. All of the patients recovered spontaneously.

Fernet [20] reported two cases of posterior mediastinal pleurisy, both on the left side, one following after pneumonia and one after lung-gangrene. Both cases showed the general symptoms indicating the presence of a collection of pus, and this was located when an area of flat percussion-tone and absence of vocal fremitus was found between the inner edge of the scapula and the spine; in both cases the third and fourth ribs were resected close to the spinal column and a large amount of pus removed. In one of the cases the patient had a vomica of about 50 gm. of pus a few days after the operation. No symptoms of pressure on the posterior mediastinum were present in either of these two cases and it seems that, although it was chiefly the mediastinal pleura that was affected, the inflammation also involved the pleural covering of the interlobar fissure and of the diaphragm.

Lafforgue's case,[21] of which only an incomplete report is given, concerned a 22-year-old man who, when admitted, had high fever, did not cough and had no dyspnea. A week later the apex-beat was found two fingers' breadths outside the mammillary line, and another week later, signs of effusion (dulness, egophony, bronchial expiration) were noticed over a longitudinal area to the right of the spinal column. A skiagram confirmed the diagnosis, but exploratory puncture gave a negative result. The patient gradually recovered, the dulness, etc., disappeared spontaneously and the apex-beat receded to its normal position. The author considered that both the anterior and posterior mediastinal pleura were affected in this case. In view of the fact, however, that exploratory puncture between the spine and the scapula was negative, one may be justified in doubting the correctness of the diagnosis.

Out of these twelve cases nine are of only moderate interest, as they give no symptoms of pressure on the posterior mediastinum. They were ordinary cases of partial, encysted pleurisy with a somewhat unusual localization between the lung and the posterior mediastinum. In their symptomatology and diagnosis they differed in no respect from an ordinary encysted pleurisy and their distinction as a special form would hardly be warranted if an encysted pleuritic exudate of the same localization were not liable, under other circumstances, by pressure on the posterior mediastinum and its organs, to produce symptoms which are radically different from the usual ones of pleurisy as exemplified by Breton's one and Dieulafoy's two cases. The reason why an encysted exudate between the lung and the posterior mediastinum does not, in all cases, produce pressure-symptoms is not quite clear. The amount of the exudate is evidently of only partial importance, as in one of Fernet's cases two liters of pus gave no pressure-symptoms, while in Breton's case only three or four hundred grams of pus produced very serious ones. Probably the occurrence of pressure-symptoms is dependent on how early the adhesions are formed and how deeply the exudate is situated. In both Dieulafoy's and Breton's cases the abscess was evidently remote from the surface, as the only superficial finding was a slight dulness between the scapula and the spine.

The posterior mediastinal pleurisy corresponds, just as does the anterior mediastinal form, to ordinary exudative pleurisy in regard to etiology, pathology, and general symptoms and gives a distinctive clinical picture only when it produces pressure-symptoms on the organs contained in the posterior mediastinum.

In Dieulafoy's Case 1 the exudate caused paroxysmal cough by pressure on the left pneumogastric nerve, stridulous inspiratory dyspnea, edema of larynx and hoarseness by pressure on the trachea, which deviated toward the right, and, perhaps on the recurrent laryngeal nerve, and, finally, dysphagia by pressure on the esophagus.

In Dieulafoy's Case 2 the exudate caused paroxysmal cough by pressure on the left pneumogastric nerve, stridulous inspiratory dyspnea with depression of jugulum and epigastrium by pressure on the trachea, dys-

phagia by pressure on the esophagus, and engorgement of the thoracic veins by pressure on the left azygos veins.

In Breton's case the exudate seems to have exerted pressure almost exclusively on the thoracic aorta, resulting in retrosternal pain and precordial angina, palpitations, dyspnea on exertion, accentuated closure of the aortic valves, and hypertrophy of the left ventricle with the apex-beat displaced toward the left.

Posterior mediastinal pleurisy is always unilateral. In six of the twelve reported cases, the left posterior mediastinal pleura was affected, and in five of these the exudate was purulent, in one putrid; the right posterior mediastinal pleura was affected in six cases, and in all of these cases but one was the exudate serous.

The prognosis of posterior mediastinal pleurisy seems to be very much less serious than of the anterior, as, out of the twelve cases, only two ended fatally. In this connection it may be worthy of note that, out of the seven cases with purulent or putrid exudate, vomica occurred in not less than five, and that in two of these five cases thoracotomy was not found necessary, as the abscess gradually emptied itself completely through the air passages.

The diagnosis of posterior mediastinal pleurisy, in cases in which no symptoms of pressure on the posterior mediastinum are present, is based on the same principles as the one of any encysted pleuritic effusion. When symptoms of pressure arise, a differential diagnosis must be made between posterior mediastinal pleurisy and any disease which is liable to produce pressure.

I shall confine myself to the enumeration of such diseases: (1) abscess of the posterior mediastinum, whether due to trauma, foreign body, suppuration of glands, perforation of esophagus or trachea, or to an inflammation spreading from an adjacent organ as, a retropharyngeal abscess, a pulmonary abscess, a suppurative pericarditis, a vertebral osteitis, or to metastasis; furthermore, (2) hypertrophic glands, (3) aneurism, (4) gumma, (5) neoplasm.

In case stridor is present, a differentiation should be made, as Dieulafoy points out, from any tracheal lesion, whether intrinsic or extrinsic, which is liable to produce stridulous dyspnea, as intratracheal gumma, polyp, stenosis, pressure from cervical glands or from struma.

TREATMENT

The treatment of mediastinal pleurisy, whether anterior or posterior, differs in no way from the usual one of any encysted pleurisy except that the indication for surgical interference comes earlier than in any other form. In order to be able to make a thoracocentesis or a thoracotomy at the proper moment, we should not hesitate to make not only one, but if necessary, several exploratory punctures to locate the exudate. No rule can be given as to where to introduce the exploratory needle. By minute physical examination we should try to determine where the maximum flatness is located, where the vocal fremitus is least perceptible, where the breath-sounds are most distant, where egophony is most pronounced, and introduce the needle in the outer edge of the area thus determined.

CONCLUSIONS

1. The clinical manifestations of mediastinal exudative pleurisy differ according to the part of the mediastinal pleura involved, and consequently according to the part of the mediastinum exposed to pressure.

2. For this reason three different forms of mediastinal pleurisy are to be distinguished: (1) pleuritis mediastinalis anterior sinistra, (2) pleuritis mediastinalis anterior dextra, (3) pleuritis mediastinalis posterior.

3. This distinction is justified, not merely from an anatomic point of view, but because it corresponds closely to clinical facts. Pleuritis mediastinalis anterior sinistra resembles very much exudative pericarditis. The most striking symptom of a pleuritis mediastinalis anterior dextra is a very deep cyanosis of head, neck, thorax and upper extremities. A posterior mediastinal pleurisy will, provided the exudate is deeply situated and is sufficiently large, cause inspiratory stridor and sometimes a deviation of the trachea by pressure on the trachea, dysphagia by pressure on the esophagus, engorgement of the intercostal veins by pressure on the azygos veins, and paroxysmal cough by pressure on the pneumograstic nerve.

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ABSTRACT OF DISCUSSION

Dr. DeLancey Rochester, Buffalo, N. Y.: Although I have nothing to offer in the way of cases to report in support of Dr. Frick's position, I do not believe that such additions to the literature should go without some discussion. We owe him a great deal for his careful analysis of his cases and for the careful examination and the knowledge displayed in making the diagnosis and his confirmation of it by exploration and, whenever possible, by autopsy. The literature on this subject will be greatly added to; we shall all be required to look more carefully into these cases hereafter. When there is cyanosis and difficult breathing, cases that have heretofore been looked on as cardiac, can now be proved to be mediastinal pleurisy, a condition which can be relieved by operative procedures.

Dr. Frank Smithies, Ann Arbor, Mich.: Were any photographic findings registered in these cases?

Dr. Andrew Frick, Chicago: No photographs were taken of the anterior mediastinal pleurisies. In a few cases of left posterior mediastinal pleurisy, however, skiagraphs were taken and they indicated a shadow or dark zone to the left of the posterior mediastinum. In these cases, also, there was dulness between the spine and the left scapula.

TRAUMATIC RUPTURE OF THE FIXED PORTION OF THE MALE URETHRA *

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PITTSBURG

Traumatic rupture of the fixed portion of the male urethra is a most serious injury, both in its immediate aspect and remote consequences: immediately serious, because of leakage of urine following the several classical paths of extravasation, with subsequent decomposition, or on account of complicating lesions of osseous or soft tissues; remotely so, owing to formation of traumatic stricture, with its attendant urinary stagnation and infection of the entire urinary tract.

The force causing a rupture of the urethra acts in one of two ways—in a direct manner, the patient falling astride an object, or indirectly, the pelvic bones being crushed together, the force usually acting in the coronal plane of the body.

* Read in the Section on Surgery of the American Medical Association, at the Sixty-First Annual Session, at St. Louis, June, 1910.

Produced in a direct manner, the urethral tear may be in a part anterior, within, or posterior to the layers of the triangular ligament, usually without complicating factors. Indirectly produced by crushing force, the tear in the urethra is often associated with an injury to the pelvic bones or soft tissues; these latter may be so disjointed or broken, the pelvic fascia so lacerated and torn from its attachments as to allow the bladder and prostate gland to hang loosely in the pelvis. The tear of the puboprostatic ligaments opens a communication between the space of Retzius and the perineum.

A tear of the membranous urethra, accompanied by laceration of one or both layers of the triangular fascial septum, or a transverse rupture of the urethra at the apex of the prostate gland, are the types of injury found as a result of force acting in an indirect manner.

The signs of a ruptured urethra are patent in the great majority of cases. With a history of an injury as described, coupled with a varying amount of free blood issuing from the urethra, inability to pass urine (when the urethra is completely torn) or difficulty experienced in voiding a small quantity of urine, always preceded by pure blood from the canal (when the tear in the urethra is partial) are extremely suggestive. Attempts made to pass a catheter are futile and usually serve to increase the bleeding.

Depending on the part of the fixed urethra injured, local inspection reveals a fulness and perhaps discoloration of the upper part of the perineum, noticeable at the perineoscrotal junction when the bulbous part of the tube is injured; or the swelling may be confined to the middle of the perineum or about the anal region when the tear is located between the layers of the triangular ligament or posterior to them. The tumefaction is caused by an effusion of blood perhaps mixed with urine. If, for any reason, the lesion is not immediately repaired, infection occurs extending along paths previously mentioned—underneath Colles' fascia through the abdominoscrotal passageway to the anterior and lateral abdominal walls following injury to the bulbous urethra; confined, at first, between the layers of the triangular ligament, subsequently ulcerating either through the anterior leaflet, gaining access to the space bounded by Colles' fascia, or through the posterior leaflet, invading the cellular tissue about the rectum.

The lesion is an anatomic one and requires an anatomic operation for its repair. It is a self-evident proposition that a procedure which restores the parts as nearly as possible to normal, brought about with a minimum of injury to surrounding structures, carrying with it a minimum mortality and shorter period of disability, both immediate and remote, is the procedure of choice. These factors are conserved by performing a circular urethrorrhaphy through a perineal opening, which incision gives access to all parts of the fixed portion of the male urethra.

The operation is greatly facilitated by placing the patient in the exaggerated dorsal position. For this purpose, the old Clover's crutch is used, supplemented by a sand-bag placed under the sacrum, which flexes the pelvis on the vertebral column so as to bring the perineum in the horizontal plane. This position renders the structures taut and makes possible an anatomic dissection. The object of this dissection resolves itself into an effort to find the proximal end of the torn urethra, the distal end being readily located by means of a sound introduced through the external meatus.

When the tear is situated anterior to the superficial triangular ligament, the proximal end of the urethra may be found through the original tear in the accelerator urinæ muscle; or this structure may be split along its median raphe, affording further working room and the end readily found.

When the tear is located at the apex of the prostate gland, the incision through the skin of the perineum may at once open an area filled with clotted blood, or it may be necessary to cut the central tendon of the perineum to reach the site of injury.

It is in those patients suffering from a rupture at the bulbomembranous juncture or situated in the membranous urethra, between the layers of the triangular ligament, that the procedure of retrograde urethral catheterization becomes necessary, rather than a suprapubic cystotomy as an aid in finding the proximal end of the torn urethra. The anatomic landmark sought is the apex of the prostate gland. The technic is similar to that carried out by Young in the performance of perineal prostatectomy, but without a guide. This step is not difficult of accomplishment, by reason of the excellent position of the patient. The urethra, immediately in front of the apex of the prostate, is opened by a linear incision, through which a small sound or guide is introduced from behind forward, facilitating the discovery of the proximal torn end of the urethra.

With both the distal and proximal ends of the ruptured urethra secured, the exaggerated dorsal position of the patient is modified, relaxing the perineal structures, thus aiding the suturing of the anterior wall of the torn canal; then the introduction of a rubber catheter from the external meatus to the bladder, completion of the circular urethrorrhaphy and closing the linear incision in the urethra at the apex of the prostate.

If the general condition of the patient does not warrant the completion of the technic of suturing the ends of the torn canal the catheter will act as a splint favoring the reparative process.

It is observed that following a rupture of any part of the fixed urethra, complicated or not by injury to surrounding structures, a catheter introduced into the bladder through the proximal torn end will evacuate a large quantity of clear urine. This retention is probably due to interference with the nerve-supply of the internal vesical sphincter, increasing its tonicity, a fact of importance, in that primary shock may be combated without the fear of continuous leakage of urine demanding immediate drainage of the bladder.

Perhaps the vulnerating force may be of sufficient degree so to distort and dislocate the perineal structures as to make it impossible to discover the proximal end of the torn urethra. In this case the only resource is to open the bladder suprapubically and carry out a retrograde catheterization. The condition of the patient may contraindicate a complete operation as a primary procedure. This matter of time, type and choice must be determined by the individual operator.

The force necessary to produce an injury of so grave a nature as rupture of the urethra undoubtedly devitalizes tissues, predisposing to infection. This imminent danger may be anticipated by appropriate drainage. If the character of the injury is such as will lead to infection underneath Colles' fascia, a rubber tissue drain of this space emerging through the perineal incision is indicated, or a through-and-through perforated tubular drain from the perineal incision, following the abdominoscrotal passageway on one or both sides, making its exit

at the pubes, may prevent a serious and annoying infection.

The wound in the perineum associated with an uncomplicated rupture of the urethra at the apex of the prostate will be cared for with a rubber tissue drain from the site of the rupture to the perineal surface.

When the ligamentous attachments of the prostate are torn, affording a communication between the prevesical space and the perineum, a perforated rubber tube, introduced through a small incision in the median line immediately above the symphysis pubis, passing to one or the other side of the prostate and emerging from the perineal incision, will prove a wise precaution.

REPORT OF CASES

The following cases typify the subject-matter:

Case 1.—*Patient.*—(Admission 40,078).—J. L. M., electrician, aged 30, was admitted to the Allegheny General Hospital, Aug. 2, 1909. The patient was on a ladder removing electric lamps, when it slipped and he fell astride an iron pipe.

Examination.—This showed on the inner aspect of right thigh a bruise, and also a slight bruise on right side of scrotum. In the median line of the perineum a small tumefaction was observed. The patient suffered very little pain. Blood escaped from the external meatus. Attempts at urination were unsuccessful, producing great distress and increasing, apparently, the swelling in the perineum and area about the anal region. The bladder on palpation was found moderately distended. Attempts at catheterization were unsuccessful.

Operation.—The patient was placed in the exaggerated dorsal position; a sound was introduced and felt at a point posterior to the base of the triangular ligament; a median incision was made from the perineo-scrotal junction to within half an inch of the anal fold; the area was opened containing clotted blood, mixed with urine. The entire prostate gland, presenting a minute portion of urethra at its apex, was found hanging loosely in the injured area. The structures about the gland were torn and lacerated, allowing the examining finger to be readily inserted into the space of Retzius and palpated through the anterior abdominal wall, immediately above the symphysis pubis. Suture of the anterior wall of the urethra with interrupted catgut sutures, the introduction of a catheter into the bladder and also through the anterior portion of the urethra, evacuation of clear urine, completion of circular urethrorrhaphy, the introduction of a perforated rubber drainage tube through a small median incision immediately above pubes and brought out through the perineal wound, along left side of gland, with closure of skin wound completed the operation.

Convalescence was uninterrupted and the patient was discharged Aug. 21, 1909, nineteen days after the operation. Occasionally there was a slight discharge of urine through the perineal opening, which ceased entirely within the next ten days.

Case 2.—*Patient.*—(Admission 41,220).—C. B., laborer, aged 30, was admitted to the Allegheny General Hospital Jan. 1, 1910. The patient was walking in the street when he stepped on the edge of the cover of a man-hole, which turned on end, the patient falling astride it. He was helped home, suffering severe pain in the perineal region and bleeding from the meatus. He went to bed, but was unable to sleep. Next morning he had several chills and suffered severe pain in lower abdomen. A physician was sent for who found the bladder distended to within one inch of the umbilicus. An attempt to catheterize the patient was unsuccessful and bleeding from the canal commenced. The patient was sent to the hospital.

Examination.—Distended bladder was present on inspection and palpation; the area over the bulbous urethra was swollen and discolored; there was bleeding from the external meatus. Temperature was 100.4; pulse 118.

Operation.—The patient was placed in the exaggerated dorsal position and a median incision over the bulbous urethra made. Clotted blood was found underneath Colles' fascia. There was laceration of the fibers of the accelerator urinæ muscle. A sound introduced through the external meatus demonstrated the distal torn end of the urethral canal, but was unable to find the proximal end of the torn tube. The incision was carried back to within one-half inch of anal folds. Blunt dissection was made of the area on either side of the central tendon of the perineum, which structure was cut. Further dissection disclosed the apex of the prostate gland. The urethral canal was opened at the apex of the gland, being careful to grasp the mucous membrane on either side of incision. The introduction of a small sound made it possible to find the proximal torn end of the urethra, which had been severed at the bulbomembranous junction. Introduction of the catheter into the bladder evacuated a large quantity of clear urine. Suture of the anterior wall of the urethral canal, the introduction of a catheter from the external meatus to the bladder, completion of circular urethrorrhaphy, closing of the linear urethrotomy wound, the insertion of a rubber tissue drain from site of tear to perineal surface and closure of the skin incision were the further steps in the operation.

Subsequently it was necessary to pass a drainage-tube through the abdomino-scrotal passageway on both sides, owing to infection. On this account convalescence was protracted. The catheter was removed on the fifth day. Leakage of urine through perineal wound persisted for four weeks. The patient was discharged from the hospital March 12, 1910. Examination was made June 4, 1910, with the introduction of a 27 French sound without difficulty, revealing a slight roughening at site of tear. The urine was negative.

Case 3.—*Patient.*—(Admission 41,992).—T. S. S., bridge inspector, aged 53, was admitted to the hospital Jan. 14, 1910. The patient was at work on a bridge when he fell astride a log. He rested about one half hour; then he resumed work, continuing until time to quit, about an hour later. He paid no attention to his hurt. While on the train bearing him to his home he coughed several times and felt as if something gave way at the site of injury. After a short time he noticed that his clothing was blood-stained and on examination found that he had bled freely from the external meatus. On his arrival home Dr. Ray (Glenshaw), who was called to see him, attempted to pass a catheter, but did not succeed, after which the patient was sent to the hospital.

Examination.—Patient walked into the hospital about nine hours after the injury. The bladder was found distended, and the external meatus closed by clotted blood; the perineum, scrotum, penis, pubic area and flanks were greatly discolored, almost black, and much swollen. The patient's general condition was good.

Operation.—Patient was placed in the exaggerated dorsal position; a sound introduced into the urethra stopped in the bulbous portion. Median incision over the bulbous urethra revealed a laceration of the accelerator urinæ muscle on left side. The distal end of the torn urethra was readily found, but it was impossible to find the proximal torn end. The incision was enlarged and a technic similar to that in Case 2 carried out; the tear was found at bulbomembranous junction. Rubber tissue drain from site of rupture to perineal surface was introduced; also from prostatic area.

The catheter was removed on the sixth day. Convalescence was uninterrupted. Patient was discharged Feb. 5, 1910, twenty-two days after operation. There was a slight leakage of urine at the time of discharge. This ceased within a week; the wound remained closed for ten days and then opened again for a few days, since which time there has been no leakage. On examination June 4, 1910, a 27 French sound was readily introduced. There was slight roughening at point of tear in urethral canal; urine negative.

CONCLUSIONS

1. Rupture at any point of the fixed portion of the male urethra is an injury of grave import.

2. The condition of the patient permitting, immediate operation to restore the integrity of the urethral canal is imperative.

3. Repair of the torn urethra at any point may be done through a median perineal incision.

4. Shock is to be overcome as a primary measure; leakage of urine in the early hours following traumatism is not to be feared.

5. Appropriate drainage is to be instituted as a prophylactic measure against infection.

6. Of great importance in the technic is the proper position of the patient.

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ABSTRACT OF DISCUSSION

DR. HARRY M. SHERMAN, San Francisco: The mechanism by which the urethra may be wounded through a pelvic wound might be explained a little more explicitly. The two ossa innominata may be pressed together, as when force is applied on either side of the body, or they may be forced apart, as when the force is applied antero-posteriorly. If a force presses the two bones together, the urethra may be pinched off between the two descending rami of the pubic bone, or one bone may slide past the other, like the blades of a pair of scissors, thus cutting off the urethra. When this occurs, the urethral injury outranks the injury to the skeleton, and the possible extravasation of urine outranks the injury to the urethra. That is, when this accident occurs the extravasation of urine is the matter of major moment, and the one which requires most attention. The plans which have been detailed for the drainage of the different layers of areolar tissue are ample. Especially would I emphasize that which drains from the space of Retzius down behind the pubic bone, and so out through the perineum. Drainage is the keynote to the situation, so far as my experience goes with these cases.

DR. GEORGE F. CORRIGAN, Newark, N. J.: Three or four months ago I had a case similar to the one described by Dr. Gaub. This man was going down in an elevator when the car slipped and he fell on a wheelbarrow, rupturing the perineum. He was brought to the hospital and several attempts were made to repair the damaged urethra. The openings in the urethra and neck of the bladder were closed; both operations failed, however. I propose in the next few weeks to operate on this man, and I am glad to have heard this paper. I fear that in doing an operation of this kind we must divert the urinary flow, in order to be successful. After the necessary preparation I will make an inverted Y-incision in the perineum, and dissect the rectum freely from the surrounding structures as well as the urethra, and endeavor to find the opening. I will pass a catheter or grooved staff after denuding the cicatricial tissue around the opening in the urethra, and then attempt to close the latter with chromicized catgut. If I do not go further, the operation will not be a success. I think that the proper procedure is to drain the bladder from above.

DR. PARKER SYMS, New York City: Immediate drainage in these cases is the important factor in saving life. Immediate repair of the injury to the urethra is most important, when it can be done with safety. I desire to report what I consider to have been a surgical curiosity—an instance of this kind which came under my observation several years ago. A mining engineer fell astride a rock and sustained rupture of the urethra, with complete retention of urine. He had to travel nine days on mule-back before he could get any surgical aid. In the meantime, he had to rely on his own ingenuity. He constructed a catheter by putting a quill on the end of a reed and after much trouble and pain, he succeeded in relieving himself. The extreme lithotomy position is a great aid in exposing the deep portions of the perineum.

DR. J. HARTLEY ANDERSON, Pittsburg: Rupture of the urethra back of the triangular ligament is one degree of a rupture which we see in fracture of the pelvis in which the prostate is also injured, and in which there is also an extraperitoneal rupture of the bladder. The operation which Dr. Gaub performed with considerable success is probably the most convenient for the lower part of the bladder, the prostate and the prostatic urethra. When there is a rupture of the bladder involving the anterior surface, the result of crushing force, it is necessary to make a suprapubic incision, and any attempt to suture the bladder in any other way will be found to be a difficult procedure. At the same time the suprapubic opening gives us the advantage of draining the prevesical space, and combined with the Proust incision drainage of the deep perineum.

The one thing that we find in these cases of ruptured urethra is the enormous displacement of the bladder where the true ligaments of the bladder are ruptured. We may find that the prostate is shoved up two or three inches, and it is almost impossible to reach it, but by making use of Young's retractors we are able to pull the bladder down and suture it into position. Drainage, especially if there has been extravasation of the urine, or an external perineal wound, is very important. The frequency of pelvic cellulitis is great, and if the fractured pubic bones are exposed, pelvic deformity and pyemia are after the results. Stricture and tortuous urethra are nearly always the final results of complete tears of the deep urethra.

DR. HUGH CABOT, Boston: The care of these patients is twofold: (1) that required immediately after the injury, and (2) that of the stricture which is a necessary consequence. The most important element in the immediate care, is the provision for proper drainage of the bladder. The most difficult cases are those due to fracture of the pelvis which are not infrequently complicated by rupture of the bladder. Satisfactory drainage may be obtained either by combined suprapubic and perineal operation, or, in the less serious cases by simple perineal section. It has not seemed to me wise to attempt primary suture of the urethra, because of the unfavorable condition of the tissues. If the sutures are placed in the bruised tissue they will not hold and infiltration occurs and the patient is worse off than if a simple perineal section had been done and the stricture dealt with later, if necessary. It is, however, important at the time of the primary operation to restore the continuity of the roof of the canal, if this has been torn across. Unless this is attended to retraction of the cut ends will result in excessive scar and a stricture difficult to deal with. The restoration of the floor should be left to a subsequent time. The essential part of this stage in the operation is the free mobilization of the anterior urethra. The extent to which the urethra can be mobilized without damage to the circulation is surprising. In one case a gap of one and a half inches was closed by mobilizing the anterior urethra up to and somewhat forward of the peno-scrotal angle, the anterior segment being then sutured to the apex of the prostate. A perineal incision in the form of an inverted V gives good access to the prostate and membranous urethra and if the anterior portion of the urethra has been thoroughly mobilized the ends can be brought together without tension. The failures that I have seen after these operations have been due to fear of sufficiently mobilizing the anterior segment; it being believed that the blood supply which comes through the triangular ligament would be interfered with. This does not seem to me to be serious. The placing of an inlying catheter at the time of operation seems to me objectionable on account of the urethritis which it produces, with resulting infiltration, scar tissue formation and increase of stricture. Drainage by a perineal tube is, I think, to be preferred.

DR. HUGH H. YOUNG, Baltimore: I have had two somewhat similar cases. One was that of a fresh rupture of the urethra which occurred in a young man who was caught between two freight cars and sustained a fracture of the pelvis, and was unable to void urine. I found that there was complete rupture of the urethra just behind the triangular ligament. The space had filled up with blood clots; the bladder and prostate were pushed upward and an immense blood clot lay between them and the triangular ligament. The interesting thing in that case was the fact that the prostate was cut off from the external sphincter, but the bladder still retained a quart of fluid. The prostatic sphincter was sufficient to prevent the escape of urine from the bladder. I brought down the prostate and made an end-to-end anastomosis with the membranous urethra.

In order to avoid urethritis I brought the catheter out through a hole in the perineum, which gave excellent drainage. The catheter was left *in situ* for a week, and primary union was obtained. No sounds were passed. The man came back to me a year later; a sound passed easily showing the absence of stricture. He was in good condition, except that he had lost erectile powers. It is interesting to note that although no sounds were passed in this case a stricture did not form, probably because the suturing was done in the membranous urethra, where there is no surrounding cavernous tissue.

In cases of carcinoma of the prostate in which I have performed an anastomosis of the bladder with the membranous urethra, no stricture has resulted. Recently I saw a young man with a similar injury, who had been treated simply by suprapubic drainage. I found a mass of scar tissue and had to dissect it out before it was possible to make an anastomosis between the prostate and membranous urethra. The operation was much more difficult than in fresh cases, and I cannot recommend too highly immediate operation and suture of the divided urethra in all these cases of complete or almost complete rupture of the urethra.

DR. OTTO C. GAUB, Pittsburg: I searched for a new type of operation, as it had been the custom in Pittsburg to open bladders suprapubically and drain perineally—a retrograde catheterization. These patients remained in the hospital for a long while. There was infection of the cellular tissue in the space of Retzius, and the patients were incapacitated for months. Stricture followed, so that the idea of treating the ruptured urethra in the manner described occurred to me after having gone over the work done by Dr. Young. I followed the description of the operation which he performed for stricture of the urethra, in which he was obliged to do a retrograde urethral catheterization.

The point is well taken, that it may not be desirable to attempt complete suture of the urethra at the primary operation, but I would go so far as to say that we should restore the anterior wall of the canal. The advantage of the operation through the perineum is that we may stop at almost any stage. If the anterior wall of the urethra is reconstructed, the catheter acts as a splint, allowing the reparative processes to go on with very little scar formation.

Another point made by Dr. Young and emphasized in the paper, is the question of retention of urine. It is curious how these bladders will fill up and no leakage occur. In the third case reported in which the bladder was distended as high up as the umbilicus, at the time of operation, nine hours after injury, by putting a catheter into the bladder clear urine was found, showing that in cases of injury accompanied by severe shock, we need pay no attention to the bladder during the first two hours. The patient can be put into better shape and the severe urethral injury then attended to, restoring the canal entirely or in part, as may be indicated.

THE NEW TREATMENT OF SYPHILIS (EHRLICH-HATA)

OBSERVATIONS AND RESULTS

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If Ehrlich had ceased his labors after giving to the profession his original work on blood, which was an enormous factor in giving stability to the new-born art of hemstology, and his studies on immunity, he would have continued to live as one of the masters of medicine. To-day Paul Ehrlich stands before the profession as the greatest living exponent of chemotherapy. His ceaseless labors have been rewarded by the discovery of a remedy, a chemical compound more specific in its effect against syphilis than any other yet introduced.

I am privileged to be able to preface what I have to offer with the positive statement that the bioxidiamidoarsenobenzoldichlorid, or the remedy labeled "606" (being the laboratory brand), is destructive to the *Treponema pallidum* (erroneously named *Spirochæta pallida*, which latter term, because of usage, I shall retain in this paper) and has a prompt and specific effect on syphilitic tissue.

Prompted by the favorable reports which during July and August of 1910 accumulated in the German medical press, I visited Ehrlich at his laboratory in Frankfurt July 12. My visit was most satisfactory. One is deeply impressed by the sincerity and scientific spirit of this man and his uniform courtesy. He is of a decidedly nervous temperament, systematic, continually on the *qui vive*. While engaged in conversation he becomes fascinating. His earnestness is striking at once. The subject which he is investigating has taken full possession of him. The conversation which I had with him led me to the conclusion that he had unbounded faith in the new remedy, but that he recognized the fact that before we are justified in reaching the conclusion that the late effects of syphilis would be entirely prevented by the remedy, we must pass through a long period of probation. As he expressed it "Es muss erst grundlich ausprobirt werden."

Ehrlich understands fully the object of chemotherapy —i. e., the production of such remedies as by powerfully affecting parasitic life cause a minimum of danger to the body which harbors them. To this splendid work he is devoting his life.

There are those who contend that Ehrlich's experiments are made only on mice and rats; but he has made clear that in order to reach safe conclusions all of these chemical products must first be tried on a variety of animals and that the remedy which after animal experimentation produces the most telling results is in all likelihood, after cautious dosage and thorough observation, the remedy which when given to man for therapeutic purposes will be likely to produce similar results. This conclusion was fully justified after animal experimentation at the Ehrlich laboratory with the various arsenic preparations, more particularly the arsenophenylglycin against trypanosomiasis, and the arsenobenzol against spirillum disease. The latter is the "606" of to-day, originally elaborated by Bertheim and used to destroy the spirillum of recurring fever by Hata and finally introduced by Ehrlich, Hata and Bertheim against the *Spirochæta pallida*.

Ehrlich has further convinced the profession that it is not possible in man to begin the use of poisons in the largest corresponding dose which is well tolerated in the animal *(dosis maxima bene tolerata)*. In man we have idiosyncrasies to consider. The primary susceptibility and the acquired susceptibility offer the greatest obstruction to the use of poisonous drugs, and it is an uncontrovertible fact that all remedies which destroy living organisms in the blood or in the tissues of the body are poisonous. It has long been known that there are a number of poisons which nullify or completely destroy specific germs but the dose required, it has been found, is so large as to make it destructive to the host or to the individual organs; hence it is useless. It has been pointed out that poisons, to be of use in the economy against parasitic life, whether vegetable or animal, must leave vital organs undamaged just as do the antibodies. The further fact has become clear that remedies which destroy the living parasite must attract these offenders, "anchor" them; in other words, they must be parasitotropic. These same remedies are also organotropic; they are destructive to organic tissue; hence

poisons to be of value chemotherapeutically must of necessity continue parasitotropic while the organotropic action must remain negative. The opinion is erroneously held by many that the spirochete is a blood-parasite. Leading syphilographers now hold that there is in all probability but one grand procession of the invading army of spirochetes through the blood-stream. Recent repeated examinations of the blood by Wechselmann, Loewenthal and Canon, seem to corroborate this conclusion. There are but few authoritative reports in medical literature which prove the continuous presence of the spirochetes in the blood. These parasites settle in the tissues of the body, causing in some cases and at some time, as a rule, a local reaction; in other cases no reaction follows, hence no late lesions.

Experience shows that the spirochete, or possibly its product, often resists specific treatment and this is unquestionably the case of tertiary lesions.

THE EHRLICH-HATA REMEDY—DOSE—PREPARATION FOR INJECTION

The drug "606" is a yellow, sulphur-colored powder. Its chemical formula is $C_{12}H_{12}O_2N_2As_2$. Bertheim elaborated the remedy. The average dose for men is 0.5 gm.; for women 0.45 gm. There is a tendency to increase this dose to 0.6 gm. in women and 0.8 in men. In all probability it will be found that the larger dose will be well borne and relapses will be reduced to a minimum. The dose for children ought not to be higher than 0.02. Wechselmann injects nursing babies with doses varying from 0.01 to 0.015 and even higher, and says that he has had no bad results. Certainly the clinical material which he presented abundantly proved the truth of his statement.

One would naturally suppose that it is easy to prepare the remedy for either intramuscular or intravenous injection. I myself shared this opinion with others who had never seen it used. Before Ehrlich sent me the remedy, after I wrote him that I was soon to leave Germany, he wisely suggested that because of the great difficulties of preparation those who were to use it might with profit visit some one of the leading centers of Germany where there was a large clinical material for the purpose of learning the method of its mixture, and the injection technic. In a letter received on August 10, Ehrlich suggested either Vienna, Berlin, Breslau or Magdeburg. I selected Berlin, where I visited at the Rudolph Virchow Spital, the clinic of Wechselmann, who has unquestionably had more experience with the use of "606" than any other man in Germany, and the Kraus clinic at the Charité, in which Citron had full charge of the material. The name of Citron is familiar to Americans who have visited medical Berlin. He is a genial, earnest worker and a delightful gentleman, thoroughly interested in his work, an excellent teacher and in all probability one of the best laboratory men on the Continent.

Wechselmann had injected over 600 patients before I left Berlin. The material at the Charité was not so large as that at the Rudolph Virchow Spital. Intravenous injection was not the favorite method of introducing the remedy in Berlin. At the Wechselmann and Kraus-Citron clinics the intramuscular method as originally recommended by Ehrlich was used. Ehrlich has recently reversed the first directions given and now recommends the intravenous method as more likely to prevent relapses and the late manifestations of syphilis, and agrees with those who claim prompter results than follows the intramuscular treatment.

METHOD OF PREPARING "606" FOR INTRA-MUSCULAR INJECTION

The entire method must include strictest asepsis; all glassware, everything used, must be thoroughly sterilized. The powder is emptied into an agate mortar, about 2 c.c. of a normal solution of sodium hydroxid is added and thoroughly mixed with the powder; a yellow thick alkaline fluid results. The alkalinity must be overcome by acetic acid. I have found it best to use the 1 per cent. solution of acetic acid instead of the glacial acid, using a little less than 0.5 c.c. of the former. If too much acetic acid is added it is necessary to overcome the acidity by a further addition of the sodium hydrate solution. In Berlin glacial acetic acid is used. If too much alkali is added to overcome the acidity after the addition of the acetic acid, then the 1 per cent. solution of acetic acid is again slowly added. The object, to reach a point at which the reaction will be absolutely neutral, must be kept constantly in mind. Litmus paper is used to test the reaction. It is wise, when it is neutral, to empty the preparation into centrifuge tubes. In preparing the remedy for injection, in order to save loss I have found it convenient to use the normal salt solution for holding in suspension the remnant left in the mortar and on the pestle. All of this is thoroughly centrifugalized. A light yellow colored powder is precipitated, after thorough sedimentation the supernatant fluid is removed by means of a pipette, and normal saline solution is added to hold the "606," which is withdrawn into a Record syringe. It is wise to suspend the remedy in at least 10 c.c. of saline fluid. The use of the normal saline for cleansing the mortar, spatula and pestle to prevent the loss of "606" which would otherwise remain and thus reduce the dose needed, has not been mentioned by others. I am thoroughly satisfied with this method of preparation because by its use I find less pain and less local irritation than I saw in Berlin.

THE PREPARATION FOR INTRAVENOUS INJECTION

Ehrlich has recently sent a circular letter to those to whom he has given "606," recommending the intravenous injection after the method fully described by Schreiber.[1] The method is as follows:

Into a graduate holding 250 c.c. drop 10-20 c.c. of sterilized water. Add the required dose of "606" and mix thoroughly until there is a clear solution; add sterile water, or better, normal salt solution to the 100 c.c. mark; then add *pro* 0.1 of "606," 0.7 of normal sodium hydroxid solution and mix thoroughly until the precipitate is thoroughly redissolved. If after thorough mixture the solution is not clear add a few drops of the sodium hydroxid solution to produce this and then add sufficient normal salt solution to make 200-250 c.c. The fluids used are all to be warm. The alkaline mixture is then ready for injection. The Cassell syringe and apparatus (or the Weintraub) supplied for this purpose are preferable, for by their use the dangers of introducing air are reduced, if the operator continues cautious and follows the directions given in the original paper of Schreiber.

It must be understood that all of the chemicals used in the preparation of the injection are to be kept thoroughly sterile.

I must repeat the warning of Ehrlich; unless the method of preparation of the remedy is to be materially simplified in the future no one should undertake its introduction into the body without first seeing the experienced mix and use it. I have seen Wechselmann's assistant work almost an hour before his mixture was neutral; Citron averaged between fifteen and twenty minutes in reaching that point. We succeeded in neu-

1. München. med. Wchnschr., 1910, No. 39

tralizing the mixture in twenty minutes at our clinic when using the glacial acetic acid; with the 1 per cent. solution originally used by me we have prepared the mixture for the centrifuge in four minutes. It is as easy to prepare the mixture for a number of injections as it is for one.

I consider the use of the centrifuge in connection with the preparation of the remedy for intramuscular injection of great importance. This, I believe, was first suggested by Wechselmann.

I found that the patients in Berlin were given their choice of the seat of injection, choosing between the inframammary, the interscapular and the gluteal regions.

The patient's skin is to be as aseptic as if he were to undergo an operation. We have insisted on hospital care of all patients injected because of our limited experience with the remedy, and because Ehrlich in his final instructions insisted that we do not use the remedy on ambulatory material. This precaution I believe wise and necessary as my experience grows. The surface, after having been treated in the usual way, is painted with tincture of iodin. We have used no local anesthesia, but use a well-made and sharp needle of large caliber.

I saw several hundred of these patients while in Berlin; some had been injected, some were injected in my presence, and the best place for injection seems to be in the interscapular region. Immediately following the injection there is likely to be some pain. As the method of preparation is improved, the liquid made neutral and the remedy sufficiently diluted, we find pain reduced to a minimum. In the patients whom we have injected we have had no marked local reaction; there has been no redness, but little swelling, and only two patients required a small dose of morphin hypodermatically for the relief of the pain. These patients were hyperesthetic.

At the Wechselmann clinic were found a number of local reactions in which the skin was red—had an erysipelatous hue. From seven to fourteen, sometimes twenty-one, days after injection there was a distinct tender, fluctuating tumor, which might easily be mistaken for an abscess. It has been found, however, that no pus is present in these cases; that the injection does not lead to suppuration. In the patients thus far treated in Syracuse we have not found these persistent swellings; neither has the slight thickening which continues for several weeks proved annoying.

It is hardly necessary to repeat the histories of the patients injected at our clinic and in private practice. The improvement in all of those in which there were evident and palpable lesions has been surprisingly rapid. There are a few points of interest, however, in connection with some of these cases which I should like to mention.

In one of our patients on the eighth day after injection, without previous temperature above 100.2 F., and this only on the second day after injection, there was presented a temperature of 102 F., pulse 110, without return of syphilitic lesions. All specific lesions had disappeared. For three days he vomited at short intervals. There was no abdominal pain; no diarrhea; there were no physical signs. On the fourth day of these symptoms his temperature was 102 F., pulse 80, respirations 20. At 10 a. m. on the fifth day his temperature was 104 F., pulse 110, respirations 21. He had no diarrhea. His bowels were thoroughly emptied by a saline injection. At 1 p. m. his temperature was 102 F., pulse 82, respirations 20. On the sixth day his temperature was 101 F., pulse 80 and respirations 20 at 10 a. m. At 1:15 p. m. the temperature was 99 F., pulse 78, respirations 20; no recurrence of specific lesions. The highest temperature on the seventh day was 100 F.; on the eighth his entire body was covered with a rash which resembled the eruption of measles. There were no catarrhal symptoms referable to the bronchial tubes or nasal passages. The rash faded in three days. The patient on the twelfth day seemed perfectly well and was hungry. There were no evidences in the mouth, glands or on the skin of syphilitic lesions. The urine during this entire period was normal.

The symptoms might easily be explained on the theory that the death of the spirochetes produced endotoxins sufficient to poison the patient. The condition was not alarming at any time but gave us cause for reflection.

This experience has not been paralleled in my practice. In looking over the literature of the subject, however, I find that a number of injected patients have passed through afebrile periods which have been followed by a train of symptoms similar to those in the case reported.

It is surprising to note how promptly the enlarged glands in all recently infected patients disappear after the injection of the remedy and how deep and painful cracks are healed, promptly becoming painless.

In another case of tabes with continuous crises which we were prevailed on to inject we found before injection a negative Wassermann reaction which became positive within three days after the treatment. Similar experiences have been noted by others.

It is surprising to note how promptly the lesions of malignant congenital syphilis yield to the remedy. We found a boy aged 14 in our service, who had been thoroughly treated for deep and characteristic ulcers of the posterior pharyngeal wall with the older remedies for months, who yielded to arsenobenzol in less than seven days. The change in the appearance of the ulcers was striking before the end of thirty-six hours.

In a number of puzzling cases, particularly of skin lesions, we have used arsenobenzol for differential diagnosis with telling and satisfactory results. *Lesions which are syphilitic, palpable and visible, yield to the remedy. Lesions which do not so yield are not syphilitic.*

In all cases the general condition of the patients shows marked improvement; all are more buoyant; are taking on flesh, and look with hope to the future.

All of our cases emphasize the truth of Wechselmann's statement that the changes are so prompt that the lesions twenty-four hours after injection in the majority of cases are no longer satisfactorily demonstrable.

CONTRA-INDICATIONS TO THE USE OF "606"

Personally with my present limited experience I would refuse absolutely to inject any patient outside the walls of a well-appointed hospital, sanitarium or a home where thorough asepsis can be observed.

Sickness of any kind, particularly acute infections, however slight, including ordinary colds, bronchial disturbances and acute indigestions positively contra-indicate the use of "606." Ehrlich writes that patients with metasyphilitic diseases at the present time ought not to be injected because of the fact that a large number of these have already been injected and he wishes to gather the reports of the end results of the treatment before recommending the remedy for these conditions.

Degenerative diseases of the nervous system *far advanced* not only contra-indicate the treatment, accord-

ing to Ehrlich, but offer direct danger. These include cases of paresis and locomotor ataxia, with associated optic neuritis. Under no circumstances are patients to be injected who have optic neuritis or other pathologic changes in the background of the eye. In these cases there is danger of sudden increase of ocular lesions or arsenical blindness. Aged and decrepit patients with advanced organic disease of vital organs, particularly affecting the cardiovascular system, arteriosclerosis, aneurism or cerebral apoplexy should never be injected. All organic diseases of non-syphilitic origin offer contra-indications.

In spite of these contra-indications which have received the sanction of Ehrlich, which in fact are insisted on by him, I saw in Berlin at the Wechselmann clinic one case of locomotor ataxia with optic neuritis in which the eye symptoms were not increased by the injection and in which the patient was thoroughly satisfied with the result. One case of tabes in which I gave an injection without bad results should in all probability be included among those which offer decided contra-indications. I believe that as our experience grows and we find that no direct harm comes to the patient from the injection in cases of incipient degenerative disease with continuous pain, we shall be justified in yielding to the strong temptation of using the remedy.

At no time should we forget that we are dealing with a poison; and I must again insist on emphasizing with all my force the very important fact that no patient is to be injected unless he continues to remain under the observation of the physician at least seven to fourteen days, preferably the latter time, and that no physician has a moral right to use the remedy unless he has acquainted himself thoroughly with the method of its mixture for injection.

THE WASSERMANN REACTION

Alt in his original work with arsenophenylglycin proved that the Wassermann reaction in syphilitics ultimately became negative. Wechselmann, Lange, Iversen and most observers who have used "606" are agreed that all patients with syphilis treated with arsenobenzol who are observed a sufficient time ultimately present a negative reaction. The only exception which was reported by these observers was in a nursing babe injected on March 17 with 0.02 gm. of "606" who died of intercurrent disease on the eleventh of June without change from positive Wassermann. The symptoms were all relieved. The necropsy showed no syphilitic remnant. In children, particularly young children, the negative Wassermann shows itself later than in adults. In a number of cases in adults and children a negative Wassermann has been followed after treatment by a positive reaction. In some this positive phase continues during a number of weeks, finally yields, becomes negative and remains so.

Statistics of collected cases prove that in patients who have been observed fifty days or longer 84.6 per cent. give a continuously negative Wassermann (Schreiber and Hoppe).

Of 268 patients who presented with a positive Wassermann, treated with the Ehrlich-Hata remedy, 153 became negative in from four to five weeks; eighteen cases, including one of malignant syphilis and one of locomotor ataxia, negative at the time of the injection continued so. It must be remembered that the majority of these patients had been treated with mercury or the iodid or by both, hence the negative Wassermann. In a number of cases in which the Wassermann became negative and then became positive, a second injection was followed by a continuous negative phase. As a rule the cases which become positive after the injection, if there are no evidences of active syphilis, finally merge into the negative state.

A positive Wassermann in any case is to be interpreted as evidence of constitutional syphilis, either hereditary or acquired. A negative Wassermann does not exclude the possibility of syphilitic infection.

It is surprising to note how many positive Wassermanns we are unearthing in conditions in which we have never before been able to demonstrate the true pathogenesis, though often strongly suspected. In Germany, particularly in Berlin, Citron and others are finding a surprisingly large number of positive Wassermann reactions in cases of cardiovascular disease. A large proportion of non-inflammatory aortic valvular and degenerative lesions have thus been shown to be due to syphilis.

The Germans have not departed from the original Wassermann technic and Lange makes the positive statement that the principles included have not yet been successfully replaced by other methods and must be rigorously followed.

VARIETIES OF LESIONS

The material which has justified this publication included a large number of malignant cases observed at the hospitals already mentioned which had been rigorously treated during long periods with our usual remedies, and under favorable conditions, without yielding. Among these were found deep-seated ulcers, cracks and thickenings about the genitals, syphilids affecting the scalp, faucial syphilis, syphilitic leukoderma, malignant types of congenital syphilis and serpiginous syphilids. None of these failed to show a favorable response to treatment. Not all of these, however, presented after treatment with entire disappearance of the lesions; occasionally a small nodule or ulcer remained. This was more likely to be true of the cases which were treated during the early days of "606," when smaller doses of the remedy were used than were finally found necessary. Wechselmann believes that in some of these cases in which the full dose was given and in which remnants remained, there is a syphilitic endarteritis which blocks the entrance of the remedy to the diseased area. In a number of these cases he administers the iodids during a limited period, believing that it opens the avenue through which the remedy reaches the distant lesion. I saw a number of these cases in which a second injection was followed by the prompt disappearance of the lesions. In a number of cases treated by Wechselmann there were positive evidences of relapse and a reappearance, more particularly of cutaneous lesions. He believes that this was due to either an insufficient dose or to the malignant nature of the infection, and in these cases he recommends a second injection after a reasonable period of observation, usually from six to eight weeks. Rupia yields to the treatment, as a rule, in from seven to fourteen days. At the Magdeburg clinic syphilitic epilepsy has been favorably influenced.

My observations justify the administration of arsenobenzol for the removal of gummata wherever located. Cases of brain, liver, and cutaneous deposits yield, in fact, melt away, after the injection. For brain gummata, when the diagnosis is made early, the treatment promises the prevention of the ultimate destruction of invaded tissue. Large liver gummata which threatened life have been cured in a few days. Kakeles reports a case in which exploratory operation disclosed the presence of an enormous non-operable mass, which proved

to be a gumma of the liver, which was successfully treated with "606." The reporter says, "I have never seen a pathologic mass melt away so rapidly." No visible or palpable syphilitic lesion which I have seen has failed to be promptly influenced by the remedy.

It is safe to inject pregnant women who are syphilitic; the fetus is favorably influenced by the treatment as has been proved by several observers.

HEREDITARY SYPHILIS

Ehrlich reported at a recent meeting of the Aerztlicher Verein in Frankfort that hereditary syphilis can be cured by injecting the mother of the nursling without direct treatment of the babe.

Taege reports brilliant results in a case in which a syphilitic mother aged 19 gave birth to a babe which promptly developed pemphigus syphiliticus, nasal syphilis, paronychia syphilitica and other positive symptoms of syphilis. The mother was injected ten days after confinement and nursed the babe. For two days the symptoms in the babe increased; after five days the history showed that the lesions were all yielding and in fifteen days after the injection of the mother the babe had gained 1,400 gm. and was free of all signs of syphilis. The examination of the mother's milk failed to show the presence of organic arsenic and on the addition of hydrochloric acid and potassium chlorate only a faint trace of inorganic arsenic was discoverable.

Ehrlich believes that the sudden death of the spirochetes releases a large quantity of endotoxins which in turn are responsible for the formation of an antitoxin which is present in the mother's milk. Whether due to arsenic or to the antitoxin finally liberated, the results are positive and surprising.

Ehrlich is less disturbed by the direct effect of the arsenobenzol in the new-born babe than by the poisonous effect of the endotoxins resulting from the death of the millions of spirochetes which flood the body.

The rational treatment of congenital syphilis makes it necessary for the mother to nurse her babe, and that she be injected with "606" without delay. When this is impossible "however paradoxical this may be," Taege says, "the syphilitic nursling must have a syphilitic wet-nurse who has been treated with '606.'"

Meirowsky and Hartmann prompted by Taege's, Duhot's and Ehrlich's observations have used the blood-serum of injected mothers in the treatment of congenital syphilis with decided benefit, and they feel justified in concluding that the results would have been entirely satisfactory if they had had a sufficient supply of the serum. Examination of the serum injected showed traces of arsenic. They believe that the antitoxin in the serum and the small quantity of arsenic are in all likelihood responsible for the results obtained. This opens a new field of study which promises to lead to the early and prompt control of the ravages of congenital syphilis.

THE DESTRUCTION OF THE CONTAGIUM VIVUM

Unquestionably the most important, most far-reaching effect of "606" to mankind is its power of destroying the living contagion or the *Spirochæta pallida*. This at once places syphilis among the diseases which will ultimately be effaced, and that with more ease than any of the other infections. Syphilis becomes a controllable and preventable disease.

The injection of the subject is followed in from seven to ten days by the complete disappearance of the parasite. Süsskind places the time of its death at from six to seven days.

Iversen has experimented with chancre-juice removed by the Bier method to find that without exception the *Spirochætæ pallidæ*, which were originally demonstrated, had disappeared in two or three days after the injection. Better proof of the disappearance of the spirochetes was found by the same observer in his examination of the inguinal glands of ten patients, in all of whom spirochetes were present before the injection of "606." In three to four days after the treatment there were no demonstrable spirochetes in the same glands. Iversen concludes that if after five or six days in injected patients spirochetes are found in the inguinal glands complete sterilization has failed to follow and the patient must be subjected to a second injection.

INTRAMUSCULAR AND INTRAVENOUS METHODS

The relative advantages of the intramuscular and intravenous methods of introducing the Ehrlich-Hata remedy are being considered. As already mentioned, Ehrlich recommended the intramuscular injections until recently, when he became convinced that the intravenous is decidedly better. The experiences of Iversen and others are convincing. It is certain that the intravenous method is followed by the more prompt elimination of the arsenic, requiring four days, while with the intramuscular method this may continue for fourteen days. The pain, which by the newer method of mixture is materially reduced, is hardly to be considered a serious objection to the intramuscular method. The intravenous injection is almost always followed in two to three hours by chills, which continue at least thirty minutes, accompanied by elevation of temperature, aching, malaise, vomiting and diarrhea. Complications are not likely to follow in well-selected cases with either method if the necessary precautions are observed.

In malignant cases it has been suggested that the two methods be used together. It is best to give intravenously the largest possible safe dose in malignant cases at the present time. Unquestionably our methods will be materially simplified in the near future. I have heard of but one death attributable directly to the remedy in all of the thousands injected. It must be remembered, however, that the material has been carefully selected and the remedy has been in the hands of but few, and all under the instruction and guidance of Ehrlich, to whom we are morally responsible for every patient injected.

The reports which are presented may appear to those who have not seen the results of treatment to be unduly rose-colored. It is true that one can scarcely believe his eyes while watching the wonderful change which takes place in these lesions. Iversen of St. Petersburg says that it is naturally difficult to describe the effect of arsenobenzol on the lesions of syphilis. "These," he says, "must be seen and palpated that the result of the treatment may be thoroughly appreciated."

CONCLUSIONS

My experience with the remedy as I saw it used abroad and in my own private and hospital practice justifies the following conclusions:

1. The treponema, otherwise known as the *Spirochæta pallida*, is positively destroyed and the living contagion of syphilis is promptly removed by the Ehrlich-Hata remedy.

2. The preparation "606" promptly and favorably affects visible and palpable syphilitic lesions. It also removes deep-seated gummata.

3. The remedy stays the destructive and onward march of syphilitic ulcerations and causes their healing in a surprisingly short time.

4. It is more rapid in its effect on specific disease than any other known remedy.

5. It is likely to prove more valuable than any other remedy in the treatment of the specific diseases of most internal organs.

6. It cannot replace cicatricial tissue, the result of Nature's reparative processes; neither does it affect favorably chronic degenerative diseases of the nervous system, such as paresis, system-diseases of the cord, in which there is a break in the continuity of nerve structure, though in some cases it seems to influence favorably the continuous crises of locomotor ataxia.

7. In all cases it causes a leukocytosis and the formation of antibodies.

8. It materially modifies, and in most cases ultimately negatives, the Wassermann reaction.

9. It unquestionably floods the circulation with endotoxins resulting from the death of millions of spirochetes, and in all probability an antitoxin is developed in the blood-serum. These facts must be thoroughly considered in connection with the treatment.

10. In acute and threatening deposits in vital organs the effect of "606" will often prove life-saving because of its prompt action, and for that reason it is preferable to the iodids or mercury.

11. It ought not to be given to ambulatory patients; neither is it safe in the hands of the careless or those who have not seen it used and learned the difficult method of its preparation for injection.

12. The hospital, where all things required in the preparation of the mixture of "606" can be sterilized, and where the centrifuge can be used, is preferable to any other place for its injection.

13. Patients injected should be kept quiet and in bed during seven days under close observation, and for a longer period if indications demand.

14. Second injections, if indicated, should not be given in less than eight weeks after the first.

15. Contra-indications should be carefully considered before using the remedy. Patients with any other infection than that of syphilis should not be injected, however mild the former may be, until a safe period has lapsed after their recovery; neither should the feeble or old or those with other than syphilitic organic disease be injected.

16. Congenital syphilis demands the treatment, either directly or indirectly, as suggested in the paper.

17. The living contagion is destroyed by "606"; hence its early use can prevent the spread of syphilis. This subject demands the immediate attention of sanitarians and those directly interested in public health.

18. In occasional well-selected cases the use of the iodids after the method of Wechselmann will increase the efficacy of "606" when second injections are necessary. From two to three weeks should lapse after thorough mercurial treatment, when this has been used, before the injection of arsenobenzol.

19. In spite of the fact that nearly all agree that the effect of arsenobenzol is magical, sufficient time has not lapsed to justify the conclusion that a single injection of "606" will prevent what we now recognize as the secondary and tertiary stages of syphilis. Only after long years of careful observation shall we be able to reach a positive conclusion. It will be necessary therefore to keep injected patients under close observation.

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THE CULTIVATION OF TISSUES OF THE CHICK-EMBRYO OUTSIDE THE BODY*

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In 1907 Harrison described briefly before the Society of Experimental Biology and Medicine[1] a method which he had found successful for the growing of certain tissues of the frog embryo outside the body. Essentially the method consisted in dissecting the central nervous system, myotomes and skin of frog embryos free from the surrounding tissues and transplanting them to a drop of lymph taken from the lymph-sac of an adult frog and contained within a hollow slide. The lymph immediately clots about the tissue elements into a loose fibrin network. Harrison watched the growth of the axis-cylinder processes of nerves and the proliferation and wandering of epithelial and connective-tissue cells within this matrix. He further observed striated embryonic muscle cells to become differentiated from the preexisting cells of the myotomes. In other words, he was able to observe a certain amount of differentiation of the tissues over a short period of time.

Other fluids were employed, however, without success, viz., physiologic salt solution, Locke's solution, and gelatin; and the transplantation of the embryonic tissues to the ventricles of the brain of the frog was not followed by proliferation and development. It appears as though the fibrin network was essential in order to afford a supporting framework on which the cells can attach themselves and thus retain their tension. The fluid within the meshes of the network corresponds to the fluid bathing the cells in the living animal and provides the nutriment. The full details of Harrison's work are now in press and will appear in the *Journal of Experimental Zoology*, 1910. In the spring of 1910 Professor Harrison kindly permitted me to spend a few months in his laboratory in order that I might acquire under his own supervision the method of growing tissues outside the body. He had already concluded that lymph was not a wholly satisfactory medium for growth. Some of the reasons were the following: The clots produced from it were neither firm nor uniform. Small quantities of lymph could be obtained from a single animal that sufficed only for one or two preparations. Hence, large series of control preparations could not be secured. It became necessary, therefore, to obtain a more uniform and abundant medium in order that the conditions underlying the growth and differentiation of tissues might be subjected to close analysis. Such an abundant medium of constant composition would, theoretically, be supplied by the blood-plasma provided it could be obtained in suitable condition.

The particular object of my study with Professor Harrison was to adapt, if possible, his method to the investigation of the growth of the tissues of warm-blooded adult animals in order to continue and extend the study of the laws of the healing of wounds and regeneration of nerves, which subjects were at that time being actively studied by Dr. Carrel, with whom I was associated at the Rockefeller Institute.

In repeating the original experiments of Harrison I succeeded in substituting the blood-plasma of the adult frog for the lymph, and thus in overcoming some of the

* From the Sheffield Biological Laboratory, Yale University.

1. Harrison, R. G.: Observations on Living Developing Nerve Fibers, Proc. Soc. Exper. Biol. and Med., 1906-1907, iii, 140; the Outgrowth of the Nerve Fiber as a Mode of Protoplasmic Movement, Jour. Exper. Zool., 1910, ix.

chief drawbacks which Harrison had encountered in his earlier work. The attempt was then made to cultivate tissues of chick embryos. The embryo of the chick offered the especial advantage of being procurable at any time throughout the year, and provided the opportunity for making observations on a warm-blooded species. Moreover, the tissues of the chick embryos are nourished at an early period from an extra-cellular yolk through the means of a well-established vascular system. Hence the removal of pieces of tissue from the embryo interrupts the vascular connections and eliminates all the nutriment derived from the yolk, so that opportunity is afforded not only for the study of growth of tissue, but also of problems of self-nutrition.

TECHNIC

The technic employed consists in placing a carefully isolated fragment of tissue of the chick-embryo in a drop of uncoagulated plasma derived from a chicken on a cover-glass. The cover-glass is inverted and sealed to a hollow slide and the preparation incubated at 39° C. The plasma immediately coagulates about the tissue and holds the fragment firmly fixed in a fibrin network. Preparations made in this way can be readily observed at all time under the microscope.

The success of the method depends on maintaining absolute asepsis and preventing undue chilling of the embryos or the completed specimens either during preparation or the later observation. In excising the fragment of tissue from the embryos they were floated in Ringer's solution and the operation carried out under a binocular microscope covered with an oven heated to 39 C.

The blood for the preparation of the plasma was obtained from young healthy adult chickens under ether anesthesia. The carotid artery is exposed and a cannula previously sterilized in olive-oil is inserted. The blood is collected in sterilized, paraffin-coated tubes which are cooled immediately by being plunged into an ice salt-bath. The blood is next centrifugalized by placing the tubes in larger centrifuge tubes which contain a mixture of salt and ice. The supernatant plasma is removed by means of paraffin-coated pipettes and transferred to paraffin-coated receptacles which are kept in a refrigerator until used. The plasma so obtained is highly stabile and can be preserved in a fluid state for many days or even weeks. It should be stated, however, that in making control experiments plasma over four days old should never be used.

RESULTS

The method as described was employed especially during the past summer in the study of the growth of tissues of sixty-hour-old chick embryos. For this purpose isolated neural tubes, heart myotomes, and skin were employed. The results which we obtained can be stated briefly as follows:

The most actively growing elements in the preparations is the interstitial connective-tissue cells. These cells begin to spread into the plasma either as single cells or a layer of cells between the second and twelfth hours of incubation, as a rule, and the growth continues for from six to fourteen days. It often happens that a large part of the drop of fluid is filled with these cells. On being fixed and stained the preparations show mitotic figures to be very common in the proliferating cells. The muscular elements grow much less frequently and cellular outgrowths from them were observed in only about 3 per cent. of the experiments. The outgrowths take place from the myotomes and the heart and appear in the form of short chains of striated cells. The striated cells which are outgrowths from the heart contract rhythmically along with the portion of the heart from which they arise. The outgrowth from the nerve cells consists of long axis-cylinder processes which present the same morphologic appearances and react in the same way to specific nerve stains as those of the chick-embryo. The full account of these studies will appear in a forthcoming number of the *Journal of Experimental Zoology*.

The technic as here described for the frog and chick embryos has now been applied by Dr. Carrel and myself to the cultivation of tissues derived from embryonic and adult mammalian species, as has already been described in THE JOURNAL.[2]

I wish to express my great obligation to Professor Harrison, first for extending to me the privileges of his laboratory for the purpose of studying the method which he had developed for growing animal cells outside the body, and next, for the ready personal assistance which he gave me at all times. I wish also to thank Professor Mendel and Professor Rettger for permitting me to use the chemical and bacteriologic apparatus needed for this work.

THE RENAL ACTIVITY IN PREGNANT AND PUERPERAL WOMEN AS REVEALED BY THE PHENOLSULPHONEPHTHALEIN TEST *

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Rountree and Geraghty[1] have recently recommended the use of phenolsulphonephthalein as a means of determining the functional activity of the kidneys, and consider it greatly superior to methylene blue, rosanilin, indigocarmin and various other substances which have heretofore been used for that purpose.

The results which they obtained by its means were so satisfactory that we were led to hope that similar determinations might throw further light on the prognosis and treatment of certain cases of toxemia of pregnancy by showing some characteristic change in the functional activity of the kidneys. As it is known that marked alterations in the metabolism normally occur in the maternal organism under the influence of pregnancy and the puerperium, we subjected a number of normal pregnant and puerperal women to the test in order to determine to what extent their kidneys reacted to it, before applying it under diseased conditions. We employed the technic recommended by Rountree and Geraghty, which is as follows:

Twenty to thirty minutes before administering the test the patient is given 300 or 400 c.c. of water by mouth in order to insure free urinary flow, as otherwise a delay in the appearance of the drug in the urine might be simply due to lack of secretion. The bladder is then completely emptied by means of a catheter introduced under aseptic precautions, and 1 c.c. of a carefully prepared solution containing 6 mg. of phenolsulphonephthalein to the cubic centimeter is administered subcutaneously either in the arm or the buttocks by means of an accurately graduated syringe. The time is

2. Carrel, Alexis, and Burrows, Montrose T.: Cultivation of Adult Tissues and Organs Outside the Body, THE JOURNAL A. M. A., Oct. 15, 1910, p. 1379; Cultivation of Sarcoma Outside of the Body, THE JOURNAL A. M. A., Oct. 29, 1910, lv, 1554.

* From the Obstetrical Department of the Johns Hopkins Hospital and University.

1. Geraghty, J. T., and Rountree, L. G.: An Experimental and Clinical Study of the Functional Activity of the Kidneys by means of Phenolsulphonephthalein, Jour. Pharmacol. and Exper. Therap., July, 1910, p. 579.

accurately noted, and the urine as it is secreted is allowed to drain through the catheter into a test-tube containing one drop of a 25 per cent. sodium hydroxid solution, and a note made of the time elapsing until the appearance of the first faint pinkish tinge. Each sample of urine is measured and the specific gravity taken. A sufficient quantity of 25 per cent. sodium hydroxid solution is then added to make the urine decidedly alkaline so as to elicit the maximum color, as acid urine only becomes yellowish or orange, which immediately gives place to a brilliant purple red when it becomes alkaline. The sample is now placed in a liter measuring flask, mixed thoroughly with distilled water and accurately filled. A small filtered portion is then taken and compared with the standard used in all these determinations. This consists of 3 mg. of phenolsulphonephthalein diluted up to 1 liter and made alkaline by the addition of 1 or 2 drops of 25 per cent. sodium hydroxid solution, and forms a beautiful purplish red fluid, which retains its intensity of color for an indefinite period, so that a single preparation serves for an immense number of tests. On comparison of the diluted alkaline solution with the standard by means of a Duboscq colorimeter, the percentage of the drug eliminated is readily estimated.

Rountree and Geraghty obtained the following results in normal non-pregnant individuals:

In normal cases the drug appears in the urine in from five to ten minutes, and 40 to 60 per cent. of the 6 mg. dose (the average being about 50 per cent.) is recovered in the first hour. From 15 to 25 per cent. of the drug administered is recovered in the second hour, making the total recovery for the two hours 61 to 85 per cent. We do not consider the time of the total elimination as of as much value as the amount of elimination for a definite period.

We have applied the test to ten women in the last month of pregnancy and to eleven women in the first two weeks of the puerperium, who were under observation in the obstetrical department of the Johns Hopkins Hospital. As far as could be shown by routine physical examination, urinary analysis and the course of pregnancy and the puerperium, all of them were normal. Twelve observations were made on the ten pregnant women, and one on each of the eleven puerperal patients; while the only variation from the technic of Rountree and Geraghty consisted in making the injections deeply into the muscles of the buttocks instead of into the arm; and we might add that the standard solution employed was kindly furnished us by Dr. Rountree.

Table 1 shows the results obtained in the pregnant women, from which it will be noted that it takes considerably longer for the drug to appear in the urine during normal pregnancy than in ordinary non-pregnant individuals; the average time elapsing being 14.6 minutes in the former as compared to five to ten minutes in the latter. We also observed decided variations in the different individuals, the shortest time of appearance being nine and the longest twenty-four minutes, but in no case did this appear to be dependent on a diminution in the amount of urine passed.

Moreover, in no instance was the total elimination during the first hour as great as that noted by Rountree and Geraghty as the lower limit of normal. In our series of cases the average percentage was 21.39 instead of 50, as in Rountree and Geraghty's normal non-pregnant subjects. We also noted a very marked variation in the different individuals, the extreme limits being 2.4 and 39 per cent. In the second hour the average percentage eliminated was slightly higher than the lower limit set by Rountree and Geraghty, being 26.54 per cent., with variations from 11.4 to 59.1 per cent. It would therefore appear that in normal pregnant women the rate of elimination is more rapid in the second than in the first hour, which is in marked contrast with the findings of Rountree and Geraghty, who demonstrated that normal non-pregnant individuals eliminated only one-half as much of the drug in the second as in the first hour. Some idea of the discrepancy between our results and theirs may be gained when we state that in seven of our twelve determinations the elimination was higher, in three approximately the same, and in only two lower in the second than in the first hour. Adding together the amount eliminated during the first and second hours, we find that the average was 47.93 per cent. with extremes of 13.8 and 65.7 per cent., while in only two instances did the total elimination fall within the limits established by Rountree and Geraghty in normal non-pregnant individuals.

TABLE 1.—RENAL ACTIVITY IN PREGNANT WOMEN AS INDICATED BY THE PHENOLSULPHONEPHTHALEIN TEST

			First Hour		Second Hour			
Obst. No.	Date of injection.	Time of appearance—minutes.	Amt. urine excreted, cc.	Percentage drug eliminated.	Amt. urine excreted, cc.	Percentage drug eliminated.	Percentage drug eliminated in 2 hrs.	Time before delivery—days.
4515	8/ 8/10	11	60	19.3	60	29.8	49.1	24
4522	8/11/10	24	35	3.5	120	59.1	62.6	7
4440	7/22/10	10	470	38.8	155	26.9	65.7	23
4489	7/23/10	13	95	12.9	70	16.7	29.6	17
4473	8/ 8/10	17	50	2.4	50	11.4	13.8	16
4473	8/16/10	23	115	23.8	90	23.3	47.1	8
4525	8/11/10	20	240	22.2	165	36	58.2	4
4497	7/28/10	15	100	24.3	140	32.2	56.5	3
4441	7/22/10	12	110	25.2	90	24.3	49.5	2
4485	7/23/10	11	125	39.0	50	18.5	57.5	1
4498	7/28/10	10	450	32.6	325	27.0	59.6	1
4489	8/ 8/10	9	230	12.7	120	23.3	36.0	1
Average		14.6	173.3	21.39	119.5	26.54	47.93	
Highest		24	470	39.0	325	59.1	65.7	
Lowest		9	35	2.4	50	11.4	13.8	

TABLE 2.—RESULTS OF TEST IN PUERPERAL WOMEN

			First Hour		Second Hour			
Obst. No.	Date of injection.	Time of appearance—minutes.	Amt. urine excreted, cc.	Percentage drug eliminated.	Amt. urine excreted, cc.	Percentage drug eliminated.	Percentage drug eliminated in 2 hrs.	Day of puerperium.
4511	8/ 9/10	10	370	34.2	340	30.5	64.7	6
4483	8/ 6/10	13	240	29	110	28.2	48.2	7
4489	8/16/10	10	300	51.7	85	11.1	62.8	8
4485	8/ 2/10	10	145	49.6	240	27.3	76.9	9
4441	8/ 2/10	13	140	27.1	95	30.3	57.4	9
4498	8/ 6/10	9	440	29.5	120	25.0	54.5	9
4487	7/26/10	15	125	41.8	300	20.3	62.1	10
4486	7/26/10	9	100	22.4	240	32.4	54.8	10
4497	8/ 9/10	8	475	20.2	540	35.2	55.4	10
4501	8/ 5/10	8	400	34.5	115	29.1	63.6	11
4500	8/ 5/10	6	290	58	125	12.6	70.6	11
Average		10.0	280.46	35.56	210	25.63	61.0	
Highest		15	475	58.0	540	35.2	76.9	
Lowest		6	100	20.0	85	11.1	48.2	

Table 2 shows the results obtained in the eleven puerperal patients. In this series the time elapsing before the appearance of the drug in the urine was approximately the same as that observed by Rountree and Geraghty in normal non-obstetric subjects. Moreover, the amount eliminated during the first hour approaches that observed by them, although the average elimination of 35.36 per cent. is considerably below their lower limit. In our series the high and low limits were 20 and 58 per cent. respectively, and in only four instances did the readings approximate Rountree and Geraghty's normal limits. In the second hour the average elimination was 25.63 per cent., which is slightly higher than the maximum noted by the above authors. In seven of our cases the elimination was greater, in two less, and in only two

equal to their normal average. Although in our puerperal series the average percentage eliminated is greater in the first than in the second hour, the relative difference is not so great as is observed in non-obstetrical patients, and in several instances the figures for the second hour are higher than for the first. At the same time the total amount eliminated corresponds fairly well with Rountree and Geraghty's normal low limit, as the average was 61.0 per cent. with extremes of 48.2 and 76.9 per cent., while in six instances the readings fell within their normal limits.

Comparison of the results obtained in these two series of cases seems to indicate that several important points of difference exist in the renal activity of pregnant and puerperal women, which may be summarized as follows:

1. The average time elapsing before the appearance of the drug is shorter in the puerperium than in pregnancy, thus indicating diminished renal activity in the latter state. 2. In puerperal women the average amount of drug eliminated in the first hour is greater than in pregnant women, while in the second hour it is approximately identical in both groups. 3. The average total elimination is greater in the puerperium than in pregnancy. This is well exemplified in Table 3, which shows the results obtained in five women whose urine was examined both before and after delivery, and forcibly accentuates these points.

TABLE 3.—RESULTS OF TEST BOTH BEFORE AND AFTER DELIVERY

	—Pregnancy—			—Puerperium—		
Obst. No.	First Hour Percentage.	Second Hour Percentage.	Total Percentage.	First Hour Percentage.	Second Hour Percentage.	Total Percentage.
4485	39.0	18.5	57.5	49.6	27.3	76.9
4497	24.3	32.2	56.5	20.2	35.2	55.4
4441	25.2	24.3	49.5	27.1	30.3	57.4
4480	12.7	23.3	36.0	51.7	11.1	62.8
4498	32.6	27.0	59.6	29.5	25.0	54.5
Average....	26.76	25.06	51.82	35.62	25.78	61.4

Notwithstanding the small number of cases studied, we consider that our findings show that pregnant and puerperal women react so differently to the phenolsulphonephthalein test, as compared with other non-pregnant individuals, as to indicate the existence of some radical change in the functional activity of the kidneys in the former. This being the case, great caution should be exercised in drawing conclusions from this test in toxemic conditions. We regret that we are unable to make definite statements in this regard. Unfortunately, neither of us, for the present at least, will be able to continue the work; but at the same time we feel that the results already obtained are sufficiently interesting to justify publication.

CONCLUSIONS

As the result of our investigations we feel that the following conclusions may be tentatively drawn:

1. Normal obstetrical patients eliminate phenolsulphonephthalein more slowly than normal non-pregnant individuals. Whether this is connected with the ordinary changes in metabolism observed at that time or is due to some other factor, we are at present unable to state.
2. In the last month of normal pregnancy the power to eliminate this drug may be very low, and falls far below the limits set for non-pregnant individuals.
3. Until more extensive observations are at hand we feel that this test should be applied with great caution in toxemic cases, although it is possible that further study will show that it may afford valuable diagnostic and prognostic information.

OBSTRUCTION OF BOWEL—DIETL'S CRISIS

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SANTA BARBARA, CALIF.

Patient.—Early Dec. 14, 1909, I was called to see Mrs. H. W. B. During the previous evening she had been stricken with intense abdominal pain, of sudden onset, the pain continuing with increasingly severe crampy exacerbations at intervals until I saw her. She had vomited twice within six hours.

Examination.—This revealed an extremely tender lump to the right of umbilicus. It was hard and seemed about the size of a tangerine orange. The patient said that the lump had appeared within the last two hours, and she was positive such condition had never existed before. The right rectus was very rigid and the right lumbar region was also on guard and sensitive. Bowels had moved previous to onset of pain, but not since. Pulse was 106, and weak volume; temperature 98.8 F. There were no urinary symptoms. The patient was frail, and had been a partial invalid for many years, suffering from a chronic phthisis pulmonalis. She had been under care of various physicians for abdominal and pelvic ailments, which at operation was found to be a general enteroptosis. The patient was hurried to Cottage Hospital and operation performed at once.

Operation.—Incision was made through the right rectus muscle. On entering the abdominal cavity the right kidney, much enlarged and highly congested, presented through the opening. The kidney was displaced downward, rotated on a longitudinal axis through the mesonephron—the upper pole lay not far from the umbilicus—and was firmly bound along its whole length by old organic adhesions to the ascending colon and hepatic flexure. The ascending colon, proximal to the hepatic flexure, was greatly distended and bluish black in color; the circulation was poor. The hepatic flexure was dragged on, stretched, compressed, rotated and angulated, producing a mechanical obstruction of the bowel. The adhesions between the kidney and the hepatic flexure were severed, the obstruction was relieved and the kidney forced back as high as possible toward its normal bed. The patient's condition on the table was not good, and no attempt was made to anchor the kidney.

Postoperative History.—Convalescence was stormy; an immediate bronchopneumonia developed, and within two or three days appeared the phenomena of general septic invasion, chills, rapid pulse, and alternating high and subnormal temperature. Life was in the balance for two weeks and then convalescence ensued. Patient died five months later from the phthisis, there being no abdominal symptoms in the interval.

Strangulation ileus due to bands of adhesions is not a rare condition; however, in a short search of the available literature I am unable to find a case in which the twisting of a kidney pedicle—Dietl's crisis—has been a factor in causing adhesions to close bowel lumen and blood-current.

905 State Street.

AN EXTRACEREBELLAR TUMOR

EDWARD L. MOORHEAD, A.M., M.D.
CHICAGO

Extracerebellar tumors lie in the cerebello-pontine recess. They apparently arise from the acoustic nerve; usually grow slowly and it may be years before symptoms, produced by pressure on the lateral lobe of cerebellum and pons, to which they are adherent, appear.

This case was referred to me May 23, 1910:

History.—Mr. R. W., aged 58, married, a car-repairer, born in Switzerland, had lived in America thirty years. His health had always been good. There was no specific history. Two years ago he had a discharge from the right ear which continued for about two weeks. He began to complain of deafness in the left ear about three years ago. Two years ago, he was

struck under the right eye by a jack-handle, causing some swelling and discoloration. In February, 1910, he began to complain of being dizzy when he would stoop over. There was headache and a sense of fulness across the frontal region. The dizziness increased and late in April, 1910, he noticed that he began to stagger, the tendency being toward the left side.

Examination.—This revealed marked ataxia of cerebellar type, with tendency to fall to the left, left nerve deafness, partial right deafness (middle ear), slight weakness of left facial nerve, including upper branch; taste not involved; left corneal reflex absent, but no other evidence of fifth nerve involvement; no ocular paralysis. Tendon reflexes were slightly increased on both sides; there was no clonus; no Babinski sign; no sign of paresis of opposite side of body; no optic neuritis, but veins of disks rather full. In the examination of patient I was assisted by Dr. T. Faith, oculist; Dr. H. Kahn, aurist, and Dr. P. Bassoe, neurologist.

Diagnosis.—Tumor at left cerebello-pontine angle, probably a fibroma of the auditory nerve (left-sided deafness preceded vertigo by two or three years), but primary growth in cerebellum or pons, with pressure on auditory and facial nerves possible. At any rate, the growth was subtentorial and on the left side.

Treatment.—While there was nothing in the patient's history, or found on examination, to point to a syphilitic origin of the disease, yet it was thought advisable to put him on specific treatment for a time. He remained in the hospital for two weeks and then returned to his home. The treatment was pushed vigorously until July 4, a period of six weeks, without any effect, the patient growing worse, being now unable to walk without falling, unless assisted.

The patient and his family requested that I operate on him in the hope of obtaining some relief. He was readmitted to the hospital July 4 and prepared for operation.

Operation.—July 6 under ether anesthesia, the usual horse-shoe-shaped incision was made through the soft parts. The skull was opened with Hudson trephine and the opening enlarged by Dahlgren forceps. No growth was found in the cerebellum, but high up, above the root of the cerebellum a dense mass was felt. As it was firmly attached to the pons, it could not be removed or brought into view. The wound was closed without drainage. During operation the anesthetic caused some trouble, the patient taking it badly.

The patient reacted from operation, but on the third day developed pneumonia, resulting in death the fourth day.

Necropsy Findings.—The specimen removed at the autopsy shows a fibroma about 3 cm. in its longest diameter and 2.5 cm. in its transverse diameter. It was firmly adherent to the side of the pons, its origin apparently being from the auditory nerve.

103 State Street.

Therapeutics

THE THYROID

(*Continued from page 1983*)

PATHOLOGY OF THE THYROID GLAND

1. The thyroid normally varies in size and in the amount of its secretion with age, sex, locality, and condition; the variations being greater in women than in men.

2. It may be inflamed, or there may be actual abscess formation.

3. It may be enlarged: (*a*) by an increase of the glandular tissue (hypertrophy); (*b*) by an increase of the colloid deposit; (*c*) by the formation of cysts; (*d*) by a dilatation of the blood-vessels, even to aneurysmal sacs; (*e*) by connective tissue development; (*f*) by tumor growth (sarcoma, cancer).

4. It may be decreased in size: (*a*) by connective tissue displacement of the glandular tissue—a sclerosis; (*b*) by general atrophy.

5. The gland may be large, and yet under-secrete.

6. The gland may be apparently small, and yet secrete sufficiently, and even hypersecrete.

Thyroid Congestion.—The thyroid probably becomes congested and stimulated with every infection, and Lorand, of Vienna (*Lancet*, London, Nov. 9, 1907) states his belief that the thyroid is an active agent in antagonizing all infections, and that when it is so stimulated, it is one cause of fever and the symptoms of fever, such as thirst, high temperature, sweating, nitrogenous loss, and wasting of the body. He believes that the thyroid is an active agent in fighting tuberculosis, and thinks that after a patient has gone through serious illnesses, or when some chronic depressing disease is present, the thyroid becomes worn out, and that is the time when tuberculosis readily attacks or develops in the patient. Whether or not we accept his conclusions as to the cause, the sequence is certainly a fact, that tuberculosis readily develops after typhoid fever, prolonged infection, prolonged alcoholism, after parturition, after prolonged lactation, and during diabetes. If his conclusions are correct, thyroid in small doses would be indicated in *tuberculosis*. But if the heart is rapid, as it generally is in this disease, thyroid should be given with care. Whether the iodin of thyroid extract would be a stimulant to the tuberculous process, as is an iodid, is a question that has not yet been decided. An iodid in active tuberculosis or in quiescent tuberculosis is more or less vicious in its action, sometimes stimulating the tuberculous process to activity, much as would tuberculin. In other words, an iodid should probably never be used in tuberculosis, especially of the lungs.

It seems to be a fact that after cured tuberculosis and after typhoid fever, diphtheria, and other serious infections, the thyroid tends to develop a greater amount of connective tissue, even if the glandular tissue does not actually atrophy. This may be one of the reasons that after severe infections arteriosclerosis is likely to occur earlier than in patients who have not suffered these illnesses, insufficient thyroid secretion tending to cause arteriosclerosis. Although congestion of the thyroid frequently occurs with infection or illness, active inflammation is rare, but it is more frequent than once thought. Actual suppuration is exceedingly rare.

Thyroid Hypertrophy.—Ordinarily, when the glandular tissue is hypertrophied, it is hypersecreting; and this may be on account of some necessary function of the body, as menstruation or pregnancy. If there is no such necessity for its hypertrophy and hypersecretion, abnormal symptoms occur, and if the condition progresses, exophthalmic goiter is the result. With this hypertrophy the blood-vessels are always enlarged and may become dilated to a condition of aneurysm. Aneurysm of a thyroid artery may be present without an increased glandular activity of the gland, but the two conditions are generally concomitant.

Increased colloid deposits and the formation of cysts produce an ordinary goiter; *i. e.*, an enlarged thyroid gland is present, but with no signs of its hypersecretion. An enlargement of the thyroid from connective tissue deposit sooner or later means under-secretion of the gland and symptoms indicative of hyposecretion.

If a tumor growth, like sarcoma or cancer, begins in some portion of the thyroid, the part of the gland not affected often becomes irritated to hypersecretion, so that symptoms from such increased secretion may be present as the tumor continues to grow. This is not always the case.

Thyroid Atrophy.—The thyroid normally atrophies after 45, and gradually developing symptoms of insuffi-

cient secretion occur. Premature shrinking of the gland may occur from connective tissue displacement of glandular tissue, a sclerosis, as above stated, from prolonged serious infections. If it is atrophied or its secretion is insufficient at or soon after birth, the child is a cretin. If it only partially secretes, with a probable disturbance of the pituitary gland (hypophysis cerebri), the child may grow large, but shows infantile obesity. If the gland ceases its secretion during adult life, or if the gland is removed by operation, myxedema is the result.

Thyroid Secretion.—The fact that a gland is palpable and large is no positive assurance that it is properly secreting. The symptoms which the patient gives and the signs which are found will determine whether its secretion is sufficient.

Occasionally a small thyroid gland is found and yet symptoms of hypersecretion are present. This, however, is a rarer condition than that of an enlargement and under-secretion.

STIMULANTS OF THE THYROID GLAND

Nervous tension, great sorrow, great joy, sexual excitement, genital disturbances (especially uterine), pregnancy, meat, coffee, tea, alcohol, arsenic, iodids, phosphorus, salicylic acid, pilocarpin, and, greatest of all stimulants, thyroid extract.

The hypersusceptibility of some patients to iodids, the so-called idiosyncrasy to these drugs, probably means that their thyroids are hypersusceptible to such stimulation. This susceptibility is most likely to occur in neurotic families.

DEPRESSANTS OF THE THYROID GLAND

Quiet, seclusion, rest, absence of all sexual excitation and all genital irritation, milk and cereal diet, glycerophosphates of lime and soda and perhaps all forms of calcium, opium in any form, ergot, bromids, chloral, and perhaps most hypnotics.

HYPERSECRETION

When the chemical analysis of the thyroid gland has reached perfection it will doubtless be found that although the histologic structure of the gland may seem normal, the secretions which it furnishes will be proved to vary greatly, both as to the amounts of the various elements and perhaps in their chemical structure. In other words, it will doubtless be found chemically, as we know clinically, that there are wide variations from the excessive secretion of all elements, as occurs in Graves' disease, to the diminished secretion of all elements, as occurs in myxedema, and that all of these variations from normal to the upper limit or Graves' disease, or from normal to the lower limit or myxedema, produce symptoms, the former from hypersecretion of some elements and the latter from hyposecretion of some elements.

The frequency with which the normal thyroid increases its activity in women, and the tendency in them for the gland to recede not rapidly to normal activity, is the cause of their excitable, nervous, and hysterical natures, and is also the reason that the final result of hypersecretion, Graves' disease, occurs four times as frequently in women as in men. The opposite is also true (as is so true of every glandular activity), *viz.*, that this gland is more likely to wear out, atrophy and hyposecrete in women after 45 than in men, and in the same ratio, 4 to 1.

There is a condition recognized as *thyroid instability*, *i. e.*, there are at one time symptoms of hypersecretion, and at another time symptoms of hyposecretion, or the secretion of the gland may be apparently normal, and there may occur crises of hypersecretion or disturbed secretion. Symptoms of this condition are evidenced by unexplainable and otherwise inexcusable asthmatic attacks, urticarial attacks, eczematous eruptions, diarrheas, subacute rheumatic attacks, unexplainable vomiting, and, perhaps, attacks of migraine, to say nothing of attacks of tachycardia. While many of these conditions may be otherwise explained, instances occur in neurotic patients when no one condition other than disturbance of the thyroid could cause so many apparently serious but self-limited conditions. The least that can be said is that such unexplained attacks should be studied from the standpoint of disturbance of the thyroid.

The evident conditions caused by hypersecretion are: (1) menstrual disturbances; (2) hysteria; (3) tachycardia; (4) symptoms of the menopause; (5) Graves' disease; (6) puerperal insanity; (7) acute mania.

1. The *profuse menstruation* of young girls is generally due to excessive activity of the thyroid gland, whereas its underactivity causes amenorrhea and chlorosis. Such girls with undersecretion or disturbed secretion may have peculiar nervous crises, perhaps even epileptic attacks, and the case is on record of one patient who was cataleptic. Women may also have profuse menstruation from too much thyroid secretion. The thyroid is also often at fault (*i. e.*, hypersecreting) when menstruation occurs too frequently, as every three or even every two weeks. This is especially true in young girls. The best treatment for this profuse menstruation or *menorrhagia*, when there is no apparent uterine reason, and also for this too frequent menstruation, is mammary extract, in tablet, to be crushed by the teeth and taken in doses of from 3 to 5 grains, three or four times a day. It is partially efficient in shortening a prolonged menstrual flow (its administration is best begun on the third day), but its best action is when administered during the interim between the periods. It will often postpone the period to the normal time, and prevent the flow from being profuse.

2. *Hysteria* has never yet been definitely defined. There has never been a lesion found; the condition has never been explained. What better etiology do we require to explain the manifold manifestations of hysteria than in disturbance of this emotional gland? Most hysterical symptoms are due to overactivity or disturbed activity of the gland, and it is perfectly natural that this gland, which is over-acting so many more times in women than in men, should cause them to be the ones most frequently to suffer from hysteria. It is hardly necessary to enumerate the hysterical manifestations to see how closely they coincide with known symptoms of thyroid hyperactivity. The crying, the laughing, the flushing, the sweating, the rapid heart, the pains without reason, and even the hysterical fever can all be accounted for by reference to the thyroid. The opposite, hysterical indifference, apathy, slow heart, hysterical moroseness, and even hysteroepilepsy, may be accounted for by subsecretion, or hyposecretion, of the thyroid.

3. It is merely begging the question to entitle a condition in a text-book as tachycardia, and yet this has been done for years. *Tachycardia* without a cardiac lesion or cardiac excuse, occurring often on least excitation, as after a cup of coffee or a glass of wine, or after mental excitation or any sudden nervous disturbance, or after any other intangible reason for rapid heart action, a paroxysmal misbehavior of the heart (not permanent, as occurs in Graves' disease), is undoubtedly

due to thyroid hyperactivity. Anything that will quiet the thyroid will stop the tachycardia. Of course such tachycardias tend soon to stop without treatment.

4. The so-called *menopause* symptoms are simply those of thyroid activity. They will be present in modified form or entirely absent if the menstruation ceases gradually and the thyroid thus gradually ceases its periodic hyperactivity. If the menstruation ceases rather abruptly, or there are long abrupt periods of intermittency, the thyroid persists in its cyclic hypertrophy and hyperactivity, and with the inability of the blood to rid itself of extra thyroid secretion by bleeding, the woman becomes intoxicated with the thyroid and develops symptoms, such as hot flashes, sweatings, palpitations, nervous irritability, restlessness, and perhaps actual hysteria. She may be relieved by bleeding from the nose, by diarrheas, polyuria, or in some other way, but she is miserable for several or more days until the period of the activity has passed. Little by little the gland will normally lessen its activity, and these symptoms disappear. If she again menstruates the relief which she gets is absolute until the next or permanent stoppage of menstruation. She will pass through this same condition if, for any reason, both ovaries are removed. Fortunately, this is now rarely done, as it has been learned that even a small piece of an ovary will functionate and prevent operative menopause. Any of the conditions or drugs named under those that tend to inhibit secretion of the thyroid are of value. Perhaps the drug of greatest value at this period is a bromid. Patients, however, having these uncomfortable menopause symptoms should be treated much on the plan of a mild Graves' disease.

The above symptoms of the menopause are very frequent and very constant, but that the symptoms of the menopause are due to a hyperactivity of the thyroid, is a fact even yet recognized by but few as the cause of the condition. Rarely the thyroid ceases its activity abruptly, or at least too greatly under-secretes soon after the menopause. Such patients rapidly put on weight, and, if the secretion is too greatly diminished, develop myxedema. Myxedema has been recognized for years as due to subcretion of the thyroid. Most women and many men put on weight after the age of 45, owing to a diminished thyroid secretion.

5. Graves' disease will be treated in the next article on thyroid.

6. The cause of *puerperal insanity* has not been explained. It is probable that this is due to a disturbed thyroid, and probably to a hypersecretion. During pregnancy the thyroid is hypersecreting, or at least should be hypersecreting, to care for the double metabolism of mother and fetus. If it is insufficient, symptoms occur, and if much insufficient, it may be a cause of puerperal eclampsia. That its increased secretion is utilized is shown by the fact that if a woman who is suffering from Graves' disease becomes pregnant she often suffers no symptoms of thyroidism during the pregnancy, but frequently the symptoms again occur after the pregnancy has terminated. However, it should be emphasized that a woman who has Graves' thyroid disease should not marry. From deductive reasoning, then, it would seem probable that puerperal insanity is due to abnormal activity of the thyroid.

7. There are certain forms of *acute mania* occurring as an intoxication, the causes of which have not yet been explained. It is possible that excessive thyroid secretion or disturbed thyroid secretion is the cause.

(To be continued)

GOOD SENSE IN PRESCRIBING

℞	Gm.	
Digitalis		
Quininæ sulphat āā	0.05	(gr. 1)

Extract gentianæ q. s. ut ft. pilula, d. tal. dos. No. xx.

Sig.: One or two pills three times daily.

It makes no difference whether Skoda (the alleged author of this pill) or some other man of equal or greater note first wrote or recommended this combination. It is not good sense. In the first place, the amounts in the prescription should be distinctly ordered by the prescriber, and then the amount divided into as many pills or capsules as the physician desires. The exact dose is thus supervised by both the physician and the pharmacist. In the above prescription there is only one to supervise the dose, and that is the pharmacist; in other words, he multiplies the dose by 20, and has no supervisor as to whether or not he makes a mistake.

In the next place, the amount of Latin required to write this prescription correctly, even with everything abbreviated, is unnecessary and uncalled for. If 1 gram (15 grains) of each of the active ingredients is ordered, and then the pharmacist is ordered to make 20 pills, the whole prescription is much simpler. The amount of the extract of gentian is entirely left to the decision of the pharmacist; in other words, it is not used at all as a drug, but is simply used as an excipient with which to make up the dry powders into pills. Why specify a pharmacopeial preparation for such a simple thing as an excipient? Whatever amount of gentian was used as the extract would be of no tonic value under any circumstances. Therefore, the excipient had much better be left to the pharmacist, if a pill is to be made.

It is always uncertain just when a pill of this description will dissolve and how much of the 0.05 gram of digitalis will ever give up its activity. If it is advisable to give digitalis in powdered form with quinin, how much better to order these two dry drugs placed dry in a capsule; then, as soon as the gelatin dissolves the powder is ready for chemical combinations and absorption.

The playing with strong drugs is inadvisable; digitalis leaves in dry powder and of uncertain strength combined in a sticky pill for slow disintegration and absorption is very uncertain, and if digitalis is actually needed, is too uncertain for scientific use. On the other hand, if digitalis is not needed, it is wrong to use a strong drug thus carelessly. With such a prescription, then, the patient gets better because of the other orders and his general management, and the prescription plays but a small part in the effect, except that on his mind. This of course is very valuable, but, if analyzed, it brings the physician into ridicule from the intelligent mental curist who knows that it is the general management and the impression on the mind rather than the prescription that did the work. If a prescription is to be written or a drug given for impression on the mind, let it not carry with it the uncertain activity of poisonous drugs.

The quinin in this prescription may become a tonic because, if enough of it is absorbed, it is more or less excreted by the saliva, and at the following meal food and drinks taste slightly bitter, and such a bitter is an appetizer. Also, quinin is a stimulant to the nervous system. The above dose of course is very small.

To sum up, if digitalis is needed it had better be administered in liquid form. If it is not needed, it should not be used at all. The extract of gentian plays no part in the therapeutic story. The small dose of quinin may be advisable in pill, tablet, or capsule.

ERGOT

Some splendid work on this drug has recently been completed by Dr. Horatio C. Wood, Jr., and Dr. Clarence A. Hofer, of Philadelphia. Their results and the tables of their experiments are published in the *Archives of Internal Medicine*, (October, 1910, p. 388).

It is a pleasure to note that they have pharmacologically determined what has been urged by a few men clinically, that ergot causes vasocontraction of the arteries and is probably a stimulant to the heart. In other words, ergot raises the blood-pressure and is of benefit to the heart. These investigators show that the action on the blood-vessels is due to peripheral action on the muscles in the blood-vessel walls, and not to action on the vasomotor center. They also show that the increase in blood-pressure caused by the drug is an accurate indicator of the activity of the ergot employed, and that the amount of the active principle of the drug, sphacelotoxin (a chemical union of the alkaloidal substance of the drug *hydro-ergotinin* with a resinous body) is also indicated by the rise in blood-pressure. Ergot is also a stimulant to all of the unstriped muscle tissue of the body.

Wood and Hofer also positively prove that the ergot on the market varies greatly in its active principle, *i. e.*, in its power to cause unstriped muscle stimulation. They also show that a perfectly prepared fluidextract rapidly and continuously loses its activity and becomes worthless. The crude drug also loses its activity on keeping. Therefore, they come to the conclusion that all liquid preparations of ergot should be kept in small bottles, hermetically sealed, and even then they think that the label should declare at what date it is manufactured, since, if a preparation is old, it is of but little value. Ordinary fluidextracts, even if not exposed to the air, will lose approximately 10 per cent. of their strength per month; hence the ordinary fluidextract on the market, bottles of which are frequently opened, lose their strength much more rapidly, and are really generally worthless.

Vaccine Therapy in Otology.—H. O. Reik in the *Laryngoscope* states that the employment of vaccine therapy in otology, although having had but a limited trial so far, has been attended by such successful results as to warrant us in feeling greatly encouraged. Furunculosis, with its recognized tendency to the formation of boils in crops, seems to have responded more promptly and satisfactorily to this form of treatment than to any other, and, in tuberculosis of the middle-ear, a condition heretofore so baffling to the otologist, there would seem to be a good reason to believe that at last we have a controlling, curative remedy. Looking into the future, there has been held out to us the enticing prospect of being able to cure without operation a larger percentage of patients with persistent chronic, purulent otitis media, or, failing in that, of insuring success for operative treatment of this affection. The aural conditions to which this new form of treatment would appear to be reasonably applicable are, Reik says, the treatment of chronic suppurative otitis media; the preparation of patients for operation, raising the opsonic index in order to facilitate rapid healing after obliteration of the gross lesions, and the postoperative treatment of mastoiditis and its complications, when healing is delayed and the patient is unable to construct new tissue without aid. While the outlook is hopeful in these several directions, we must not grow too enthusiastic as yet. We are perhaps justified in some degree of optimism but not in enthusiasm. Let us try the method further, with fairness and judiciously, Reik urges, not expecting the impossible of it, for it will not entirely displace any other form of treatment; no matter how valuable it ultimately becomes, it will only be an additional therapeutic measure at our command.

New and Nonofficial Remedies

SINCE THE PUBLICATION OF THE BOOK "NEW AND NONOFFICIAL REMEDIES, 1910," THE FOLLOWING ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK ARE ASKED FOR.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

[For list of articles which have already been mentioned in detail, see THE JOURNAL, page 1980, last week.]

ARBUTIN.—Arbutinum.—Arbutin, $C_{12}H_{16}O_7 + \frac{1}{2}H_2O$, is a glucosid occurring in the leaves of *Arctostaphylos Uva-ursi Spr.*, *Vaccinium Vitis-Idaea L.* and many other genera of the family *Ericaceae*.

Arbutin occurs in long, glistening, colorless needles, or as a fine, white, crystalline, odorless powder having a bitter taste. It is soluble in 8 parts of water and 16 parts of alcohol; very soluble in hot water and hot alcohol; insoluble in chloroform, ether and carbon disulphid. Its aqueous solution is neutral to litmus paper and is not precipitated by solutions of the metallic salts or by solution of tannin. Its aqueous solution is colored blue by ferric chlorid test solution. By boiling with diluted sulphuric acid or by treatment with emulsin arbutin is converted into glucose and hydroquinone.

When heated to 100° C. (212° F.) arbutin loses its water of hydration. At 144° to 146° C. (291.2° to 294.8° F.) the anhydrous glucosid melts. It should leave no residue on ignition.

An aqueous solution of arbutin (1/20) should not be affected by hydrogen sulphid (absence of lead).

Actions and Uses.—Arbutin probably owes its effect, at least in part, to the antiseptic action of hydroquinone, formed by its decomposition in the urinary tract. It has been used as a urinary antiseptic and diuretic.

Dosage.—0.2 to 0.5 Gm. (2 to 7 grains) three or four times a day.

NUCLEIC ACID.—Acidum Nucleicum.—Nucleinic Acid.—Nucleic acid is an organic acid obtained from nuclein by the action of alkalies or by tryptic digestion.

Nucleic acid is an amorphous, white powder and has an acid reaction. It is readily soluble in ammoniacal or alkaline water with the formation of water-soluble salts. From these solutions it is precipitated by slight excess of hydrochloric acid but not by acetic acid. It is insoluble in alcohol and ether. When chemically pure it does not give the biuret test or Millon's reaction, but a slight response to these reagents does not indicate a degree of impurity incompatible with its use as a medicinal agent.

It should contain between 14.5 and 16.5 per cent. of nitrogen and between 8.5 and 10.5 per cent. of phosphorus, the relative proportion being 4 atoms of P to 14 or 16 N, approximately.

Actions and Uses.—See Nuclein, Nucleic Acid and Nucleates.

Dosage.—0.06 to 0.3 Gm. (1 to 5 grains) three times a day.

Non-Proprietary Preparation:

Nucleinic Acid Merck (from Yeast).—Manufactured by E. Merck, Darmstadt, Germany (Merck & Co., New York).

ACNE VACCINE.—A vaccine prepared from acne bacilli (Bacillus acnes). Said to be useful in the milder forms of acne.

H. K. Mulford Co., Philadelphia.

Acne-Bacteria. This product is marketed in four syringes containing respectively 25 million, 50 million, 100 million and 200 million killed acne bacilli, sold in a package or as separate syringes.

Dose. Initially 5 to 25 millions.

FRIEDLANDER VACCINE.—A vaccine prepared from the Friedlander bacillus. It is said to be useful in infections by the Friedlander bacillus, such as chronic nasal catarrh and chronic gleet.

H. K. Mulford Co., Philadelphia.

Friedlander Bacteria. This product is marketed in packages of four syringes, containing respectively 50 million, 100 million, 200 million and 400 million killed Friedlander bacilli. The single syringes may be obtained separately.

NORMAL HORSE SERUM.—(See N. N. R., p. 186).

H. K. Mulford Co., Philadelphia.

Normal Serum (From the Horse). Marketed in packages of two syringes, each containing 10 Cc.

ANTIMENINGOCOCCUS SERUM.—(See N. N. R., p. 172).

H. K. Mulford Co., Philadelphia.

Antimeningitis Serum. A serum prepared from the blood of horses immunized to the meningococcus of Weichselbaum (Diplococcus intracellularis), according to the method of Flexner (inoculation of autolyzed cultures followed by living organisms).

It is useful for the treatment of epidemic cerebrospinal meningitis, due to the meningococcus.

Dose. 15 to 30 Cc. (4 to 8 fluidrams) given by intraspinal injection. For young infants, 10 Cc. (2½ fluidrams). The serum is marketed in aseptic glass syringes with sterilized needle.

STAPHYLOCOCCUS VACCINES.—(See N. N. R., p. 179).

H. K. Mulford Co., Philadelphia.

Four varieties of vaccine are offered:

1. *Staphylo-Albus Bacterin.* From staphylococcus pyogenes albus.

2. *Staphylo-Aureus Bacteria.* From Staphylococcus pyogenes aureus.

3. *Staphylo-Bacterin.* Containing a mixed culture of staphylococcus albus, aureus, and citreus.

4. *Staphylo-Acne-Bacterin.* A mixed vaccine prepared from cultures of staphylococcus albus, aureus, and citreus with bacillus acnes.

All the above are marketed in packages of four syringes containing respectively 250 million, 500 million, 1 billion and 2 billion killed staphylococci. The syringes of staphylo-acne bacterin contain in addition, respectively, 25 million, 50 million, 100 million and 200 million acne bacilli. The single syringes may be obtained separately.

TUBERCULOSIS SERUM VACCINE.—An emulsion of human tubercle bacilli, sensitized by the application of tuberculosis serum.

The production of sensitized tubercle bacilli, or bacilli which are capable of complement fixation, is accomplished with the assistance of an efficient tuberculosis-immune serum, which has a considerable content of specific amboceptor antituberculin. The content of this serum in specific amboceptor is ascertained according to the method of complement fixation. Besides antituberculin, this serum contains agglutinating, precipitating and bacteriotrope immune bodies.

Emulsions of sensitised tubercle bacilli are prepared as follows: Human tubercle bacilli, after having been thoroughly washed and briskly dried, are mixed with fresh tuberculosis serum, the quantity of which is calculated from the determination of the immunity bodies. This mixture is left for several days in the incubator, at a temperature of 37° C., and is then shaken in an apparatus, with glass beads, until intact tubercle bacilli are no longer demonstrable in the removed sample. The broken-up masses of bacilli are then separated from the serum, through centrifugalisation, washed with physiologic salt solution, and finally worked into fine emulsions, with 40 per cent. glycerin water, to which has been added phenol 0.5 per cent. The contents of this emulsion in bacillary substance amounts to 0.005 Gm. in 1 Cc. The original emulsions and dilutions are to all intents and purposes permanently durable, provided they are kept in a cool place, not exposed to freezing, and protected from the light.

Actions and Uses.—It is claimed that this emulsion contains specific immune bodies which are non-poisonous for healthy and tuberculous subjects, but are capable of exerting a remarkable effect on tuberculous processes.

Farbwerke vorm. Meister Lucius and Bruening, Hoechst, a. M., Germany. (Victor Koechl & Co., New York.)

Tuberculin "Koch" (old). Marketed in vials containing 1 Cc., 5 Cc. or 50 Cc.

New Tuberculin "Koch" (T. R.). Marketed in vials containing 1 Cc. and 5 Cc.

Koch's Bacilli Emulsion. Marketed in vials containing 1 Cc. and 5 Cc.

Tuberculosis Diagnostic "Hoechst." Dried tuberculin free from glycerin, prepared from Tuberculin Koch (old Tuberculin). To be used in 0.1 per cent. solutions for the tuberculo-ophthalmic reaction.

Tuberculosis Diagnostic "Hoechst" Dry in Tubes. Each tube contains 0.005 Gm. (1/10 grain).

Dosage. The contents of a tube are dissolved in 5 Cc. of cold sterile water.

Tuberculosis Diagnostic "Hoechst" 0.1 per cent. solution.

Dosage. The contents of the tube are ready for use.

Tuberculin T. O. A. Original Tuberculin T. O. A. This preparation is a bouillon filtrate. For preparation see Tuberculin "Denys," N. N. R., p. 181. Supplied in bottles containing 1 Cc. and 5 Cc.

Vacuum Tuberculin. Tuberculin T. O. A. reduced to 1/10 of its volume in a partial vacuum at a low temperature.

Actions and Uses. It is intended solely for the treatment of patients who exhibit too violent reactions to Old Tuberculin, to Tuberculin T. R. and to Tuberculin Bacilli Emulsion.

Vacuum Tuberculin is marketed in glass bottles containing 1 Cc. and 5 Cc.

Dry Dead Tubercle Germs. For use in making the bacillary emulsion for the tuberculo-opsonic test.

Bovine Tuberculin. Tuberculin corresponding to Tuberculin "Koch" Old but prepared from bovine bacilli. Marketed in bottles containing 1 Cc. or 5 Cc.

Bovine Bacilli Emulsion. Corresponding to Koch's Bacilli Emulsion but prepared from bovine bacilli. In original bottles containing 1 Cc. and 5 Cc.

Bovine Tuberculin T. R. Corresponding to Tuberculin T. R. but prepared from bovine bacilli. In bottles containing 1 Cc.

Bovine Tuberculin Old. A bouillon filtrate from bovine bacilli. Indications similar to those for Tuberculin T. O. A. Supplied in glass bottles containing 1 Cc. and 5 Cc.

Vacuum Bovine Tuberculin. A tuberculin prepared from bovine bacilli by the process for vacuum tuberculin. The advantage of the vacuum preparations is only in their better keeping qualities. Vacuum bovine tuberculin is supplied in glass bottles containing 1 Cc. and 5 Cc.

Polygenous Tubercle Bacilli Emulsion. A bacilli emulsion prepared from eight different cultures of tubercle bacilli which differ as much as possible from each other.

Dead Bovine Tubercle Bacilli. Supplied in flasks containing 1 Gm. and 5 Gm.

Tuberculin Residue. Tuberculin residue is supplied in the form of a moist paste and a dry preparation in vials of 1 Gm. and 5 Gm. each.

Tuberculosis Serum Vaccine "Hoechst." Emulsions of sensitized tubercle bacilli are supplied in the original concentration, in vials of 1 and 5 Cc. each, and also in serial dilutions.

Dosage. The treatment is begun with 0.1 Cc. of a dilution 1/1,000,000 and the dose gradually increased until 0.5 Cc. of the original emulsions are readily tolerated and the corresponding clinical effects are demonstrable. It should not be used in the presence of cachexia, mixed infection or permanent rise of temperature.

Tuberculin Gesellschaft, St. Petersburg, Russia. (Morgenstern & Co., New York.)

Endotin.—Tuberculinum Purum. Endotin is the purified extract of a filtered culture of human bacilli in 50 per cent. glycerin.

Endotin is prepared exactly as Koch's "Old" tuberculin, but is subsequently treated with alcohol, ether, chloroform and xylol in order to eliminate the deuteroalbumoses present.

Tuberculinum purum is now supplied in a carton of 4 series which are intended to represent a course of tuberculin treatment. Each series consists of 7 ampuls.

Noguchi Test for Syphilis

Noguchi test for syphilis is a modification of the method of Wassermann and involves the use of two standardized papers as follows:

Amboceptor Paper.—This is obtained by injecting washed human blood corpuscles (erythrocytes) into rabbits, at intervals of five to seven days, over a period of five or six weeks. Ten days are allowed to elapse after the last injection. The rabbits are then bled and the serum collected. Filter paper is now saturated with this serum and allowed to dry. The paper is cut in strips and set aside until wanted for use. In this form amboceptor will keep for a considerable length of time.

Amboceptor paper is standardized by measuring its specific activity. The measurement of specific activity consists of finding the amount of amboceptor necessary to cause hemolysis in 1 Cc. of suspended human red corpuscles, one drop of blood in 4 Cc. normal saline solution with 0.02 Cc. of fresh guinea-pig serum. Incubate this at a temperature of 37½ C. for one hour. The quantity of paper necessary to cause hemolysis under these conditions is known as 1 unit.

Antigen Paper.—Antigen is made by rubbing liver tissue with sand and extracting with alcohol. One Gm. of liver tissue is macerated in 10 Cc. of alcohol for one week at 37.5 C., shaking the container every day. It is filtered until clear and the filtrate evaporated. The resulting extract is dissolved in ether and this solution poured into a large quantity of acetone. The acetone precipitates certain lipoid substances, which are then collected and redissolved in ether-alcohol and constitute the antigen. Antigen papers are now prepared by saturating filter paper with this solution and allowing it to dry, after which it is cut into strips. The unit of standardization is the amount of antigen paper necessary to prevent hemolysis of human red corpuscles in the presence of syphilitic serum. The antigen paper must not of itself cause hemolysis.

H. K. Mulford Co., Philadelphia.

Noguchi Test Mulford. Noguchi test Mulford consists of amboceptor paper and antigen paper in a package accompanied with full directions for use.

Amboceptor Paper. Amboceptor paper is marketed in a glass tube.

Antigen Paper. Antigen paper is marketed in tubes containing acetone, because it is believed to prevent oxidation. When wanted for use, a strip of the paper is removed from the vial and the acetone allowed to evaporate.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 DEARBORN AVENUE . . . CHICAGO, ILL.

Cable Address . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

[For other information see second page following reading matter]

SATURDAY, DECEMBER 10, 1910

KOCH'S LAST WORD ON TUBERCULOSIS

Shortly before he died, Robert Koch delivered an interesting lecture in the Academy of Sciences in Berlin on the epidemiology of tuberculosis. This lecture has now been published.[1] In it Koch discusses certain statistics bearing on the death-rate of pulmonary tuberculosis, or phthisis, which is the most favorable form of tuberculosis for statistical purposes.

It appears that the first reliable statistics were gathered in Sweden and that in the middle of the eighteenth century the mortality in Sweden for the country was 21.5 per ten thousand of the living population and for Stockholm 73.2. The rate rose slowly and steadily far into the nineteenth century, owing, it was thought, to the abuse of alcohol.

One of the most remarkable features in the epidemiology of tuberculosis is the lowered death-rate during more recent years, and it is to this phase that Koch directs especial attention. At first the statistics showing decrease were received with skepticism, but as the decrease became more and more general, it became an accepted fact. Koch gives curves showing that in Prussia a decrease commenced in 1886, which has been going on fairly regularly since, so that in 1908 the death-rate had fallen 50 per cent. The curve for the whole of Germany resembles very much that for Prussia. If the conditions that obtained in Germany thirty years ago had continued up to the present, something like a hundred thousand human beings more per year would have died from pulmonary tuberculosis. Consequently it becomes a matter of the greatest importance to discover, if possible, the causes of the decrease with a view to favoring its rate and its continuance.

As the death-rate of pulmonary tuberculosis falls more rapidly than the general death-rate, which is also decreasing, there must be factors at work that are peculiar for tuberculosis. If the decrease depends on something inherent in the nature of tuberculosis so that the disease was bound to decrease of itself, then the decrease should take place in a uniform manner everywhere. But this is not the case. There are countries in which the disease has been increasing, notably Ireland, Norway, until very recently, and Japan. In Paris the curve shows little tendency to go down. It appears also that in New York and especially in Berlin the decrease has been less during the last few years than previously. There are also difficulties in the way of explaining the fall in the mortality of pulmonary tuberculosis by any sudden loss in virulence of the disease.

The fall in the death-rate of tuberculosis is often brought into relation with the discovery of the bacillus. This established the transmissible character of the disease and naturally led to preventive measures. Thus it is remarkable that with few exceptions the decrease begins almost everywhere within a few years after this discovery. There are, however, exceptions to this connection. Koch finds the conditions in Great Britain especially interesting. As is well known, the death-rate from tuberculosis is decreasing in England and Scotland and increasing, although slowly, in Ireland. Newsholme, who has studied this question with the greatest care and from all sides, reached the conclusion that the modes of caring for the tuberculous poor form the determining factor: in England and Scotland they are cared for in institutions, whereas in Ireland they are not necessarily so cared for. This was the case in Norway also until recently; since special institutions began to be established the death-rate has fallen. In Paris also there is a lack of suitable hospitals. Koch supports Newsholme; in no other way is the danger of infection from a phthisical patient so thoroughly avoided as by isolation in a hospital. In leprosy we have a striking example of the preventive effect of isolation and hospital treatment.

Koch then goes on to discuss the importance of the character of the living-rooms and more particularly the sleeping-rooms with respect to the spread of tuberculosis. In Germany the highest mortality is not in the poorest districts, but in relatively prosperous regions along the North Sea, where it is the custom to place the beds in small cell-like rooms or cubicles which are carefully closed during the night, and he would trace the greater death-rate in certain parts of the country as compared with cities as dependent in many cases on the facilities for infection afforded by the confined sleeping-room. The great danger of infection from phthisical patients in lodgings of one room is self-evident. He reaches the final conclusion that the decrease in tuberculosis of the lungs is dependent on various factors, the two most important being isolation of patients in hospitals and improvement of the sleeping-rooms and living-rooms.

Great difficulties are still in the way before the mortality can be depressed to the lowest possible level. The exact statistical determination of the mortality of tuberculosis has been and will be of great value, because the mortality curve at once indicates whether the measures employed are effective. Thus, New York City, when its curve began to flatten out, at once resolved to increase its hospital facilities. The same is true of Berlin. To

1. Koch: Ztsch. f. Hyg. u. Infektionskr., 1910, lxxii, 1, and Berlin Letter, THE JOURNAL, Nov. 26, 1910, p. 1904.

penetrate as deeply as possible into the situation, exact studies should be conducted of smaller districts and towns. Only by so doing will it be possible to secure the greatest help from the lessons obtained from the mortality statistics of tuberculosis. In conclusion we may say then that Koch's last word on tuberculosis is that mortality statistics, carefully obtained and intelligently studied, constitute important factors in our understanding of the subject, which we should utilize to the fullest possible extent as an aid in the prevention of tuberculosis.

THE SEPTIC TANK

The interest that has been expressed in our recent editorial on the septic tank,[1] and the number of inquiries received regarding additional data on the subject, make it seem worth while to give a few supplementary details. The septic tank owes its rather singular name to Donald Cameron of Exeter, England, through whose work about fifteen years ago the so-called septic process of treating sewage first became prominent. The observations on which the process is based are first, the settling out on standing of a considerable proportion of the suspended particles in sewage leading to a sediment or sludge formation, and, second, the dissolving of a part of the sludge, presumably through the activity of bacteria or their enzymes. The partial freeing of sewage from suspended particles by sedimentation was nothing novel, since the advantages of settling tanks, particularly in connection with chemical precipitation, had long been known. On the other hand, the digestion of some of the solid matter of the sewage within the septic tank was supposed to be a feature of very great value. Furthermore, it was believed, although the evidence on this point was never very convincing, that the effluent from septic tanks could be more effectively dealt with than fresh sewage by biologic after-treatment, such as application to contact beds or sprinkling filters. Roughly speaking, then, the septic tank may be looked on as a kind of settling-tank in which the sewage is retained long enough to permit of a diminution in the amount of the sludge and of other chemical changes. The main difference between the settling-tank and the septic tank is the length of time of retention of the sewage.

The diminution of sludge, such as it is, is undoubtedly an advantage. In the early days of septic tank experimentation the amount of sludge digestion seems to have been overestimated. On this point Dunbar of Hamburg, one of the leading students of sewage disposal, writes: "At first it was maintained that the sludge was entirely liquefied and gasified; then that its volume was reduced by 50 per cent., and, as a result of the most recent investigations of which I am aware, it is stated that the amount of sludge is not reduced by more than 9 per cent." For some reason, at present not clearly understood, there seems to be a high degree of variation in the percentage of sludge digestion effected in different septic tanks. Probably differences in the composition of the sewage, in climatic conditions, in size of tank employed and other local factors are in part responsible for the wide range of variation in sludge digestion.

At one time much was hoped from the septic tank in the way of providing a clear and favorable effluent for biologic after-treatment. It was even said with an appearance of precision that the anaerobic changes which took place in the septic tank were essential to prepare the sewage for the aerobic or nitrifying changes which occurred in the filter-bed. On this point faith in the septic tank as a useful adjunct to the purification process has suffered its most grievous disappointment. The effluent from the septic tank is no easier to purify than fresh sewage; indeed, it is more difficult. There is now everywhere agreement among sewage-works engineers that septic action retards rather than facilitates purification both on filter-beds and irrigation fields. The well-known sanitary engineer, Rudolph Hering, has recently expressed the prevailing view where he says that "there is being more and more recognized, on the one hand, the disadvantage of treating foul instead of fresh sewage and the further disadvantage of passing sewage through septic tanks; and on the other hand, the advantage of passing thin layers of fairly fresh sewage over extensive surfaces, exposed to simple attracting forces which segregate the suspended matters."[2]

In answer to the question, therefore, what is gained by allowing a sewage to remain in a settling-tank long enough for decomposition to take place, the reply must be that practically no advantage is obtained. The elaborate experiments which were carried out by Winslow and Phelps[3] on the purification of the sewage of Boston led to the conclusion that the septic tank treatment affords no particular advantage. On the contrary they say: "Since November, 1906, when the distribution system was put in order, crude sewage has been treated on one of our trickling beds with perfect success. The effluent from this filter was less frequently putrescible than that from the bed which received septic effluent. The filter taking septic effluent showed a deposit on its floor, due to secondary reducing changes, which was absent from the crude sewage bed. Furthermore, the absence of the odors produced by spraying septic sewage is an advantage of considerable moment in favor of the process of treating fresh sewage." Recent experiments at Gloversville, N. Y., where the sewage contains a large amount of industrial waste from tanneries, have led to similar conclusions and have shown that while the amount of sludge produced by the septic process is somewhat less than that obtained by sedimentation, this advantage is nullified in other ways as in the tendency towards an increased amount of suspended matter in the septic tank effluent.

1. The Rise and Fall of the Septic Tank, THE JOURNAL A. M. A., Nov. 5, 1910, p. 1650

2. Hering, R.: Engineering News, Oct. 6, 1910.
3. Winslow and Phelps: Contributions from Sanitary Research Laboratory, Mass. Inst. Tech., 1907.

On the whole, then, it may be said that apart from the advantages that may also be obtained by simple sedimentation (four hours or less), the septic tank has little to recommend it. The slightly increased digestion of sludge is in large degree counterbalanced by the added difficulty of treating the septic effluent. The prevailing opinion among students of the sewage disposal problem is that there is no substantial gain from retaining sewage in tanks until decomposition has set in, but that on the contrary the practice is often distinctly disadvantageous as compared with mechanical sedimentation for a brief period.

THE DEATH OF MRS. EDDY

Announcement has been made of the death of Mrs. Mary Baker Glover Eddy, of pneumonia, at Boston, at the age of 88. Her death marks the close of the first chapter of a most remarkable instance of human credulity—a movement all the more notable in that its origin and development have taken place in the full view of nineteenth century civilization.

Mrs. Eddy has been more fortunate than many other founders of cults and religious teachers. Some of these died before they saw the wide-spread acceptance of their peculiar doctrines, whereas at Mrs. Eddy's death her teachings were followed by thousands in various parts of the world. The beginnings of most movements of this character, and in many cases the personalities of their founders as well, have been shrouded in a veil of mysticism, which has lent an increased attraction and fascination to the susceptible convert and follower. A modern substitute for this mysticism has been afforded to some extent in recent years by the discreet reserve with which Mrs. Eddy's personality has been shielded from public observation. At the same time, the serene unreason of her doctrines has a certain fascination for some otherwise literal-minded individuals, who apparently find in these doctrines and formulas an unforeseen avenue of escape from the harsh tyranny of fact. Perhaps, after all, it is not strange that it should be in the age of material progress—of steam printing-presses, of electric railways and of telegraphs and telephones—that Berkeley's easy short cut out of theoretical materialism should be made the basis of a new cult. "When Berkeley says there is no matter, it is no matter what he says"; but when thousands of people repeat devoutly after Mrs. Eddy, "Mind is all; all is mind" the affair cannot be so lightly dismissed. And on the other hand, not only have modern (and material) methods of communication made possible an unprecedentedly rapid spread of the new cult, but the adherents of that cult have shown a marvelous aptitude for acquiring and making use of those highly esteemed nonentities, cash and credit—and the newspapers. Still, that an unknown, uneducated and almost friendless woman could, from the fifty-sixth to the eighty-ninth years of her life, adapt a creed and establish a cult which would attract many thousands of adherents and draw the attention of the world, cannot but be regarded as a strange and unique chapter in the history of human beliefs and religious vagaries.

It is impossible to determine, at present, what effect her death will have on the movement which she inaugurated. Some years ago it might have precipitated a collapse, but conditions have changed. It must be remembered that for a number of years, Mrs. Eddy has been eliminated from the actual management of the affairs of her following by a well-organized group of experienced business promoters. The principal effect of her death, therefore, for the time being at least, will be a sentimental one. One prophecy, however, may be safely made in the light of the history of other religious movements: the cult will not continue long in its present condition. But whether it will suddenly fall to pieces, as did the following of Dowie after his death, or whether, gradually losing its peculiar features, it will become one of the conventional religious bodies, as have so many similar movements; or whether, broken into warring factions by ambitious and rival leaders, it will gradually disintegrate, time alone will tell. Whatever fate awaits it, however, it is safe to predict, judging from similar movements of the past, that it has reached its high-water mark.

Current Comment

BUSINESS PHILANTHROPY

The linking of the terms "business" and "philanthropy" seems at first sight to be an incongruity or a paradox; and yet business philanthropy is philanthropy in its most effective form. An example of this form of philanthropy is described by Dr. George M. Sternberg[1] in an article on the improvement of housing conditions among the working classes as a factor in the reduction of tuberculosis. In the city of Washington, with its large colored population, with a tendency to overcrowding, tuberculosis has been very prevalent, and this is true also of the white laboring population. As a means of improving the situation and at the same time of securing a reasonable return on the investment, in 1898, Dr. Sternberg, together with some other public-spirited citizens, organized a company for the building of apartments for the laboring classes, which would provide light and air and be equipped with all sanitary conveniences, and which might be rented at a rental compatible with the incomes of that class of people. The houses constructed by this company, and also by other real-estate owners, are of the two-flat type, each flat being entirely independent, having three to five rooms, bath and all sanitary conveniences, and provided with a separate yard. These houses present an attractive appearance; they are built in blocks, often occupying a minor street, formerly an alley, but widened and well paved. Each room is supplied with an abundance

1. Sternberg, G. M.: Housing of the Working Class, as a Factor in the Prevention of Tuberculosis, Jour. Outdoor Life, November, 1910, p. 319.

of light, and the flats are so constructed as to eliminate all the unpleasant features of the usual tenement houses. The average rental of these houses is $3.25 per month per room, which brings them within the rule that a laborer should pay not more than one-fifth of his income for rental. An admirable device for securing the cooperation of tenants in the care of the apartments is the provision for devoting one month's rent to repairs, and making a rebate to the tenant of this month's rent if no repairs are necessary; otherwise a rebate is made of the difference between the month's rent and the cost of repairs. Nearly 2,000 such houses have been built in Washington. The original company now has $940,000 invested in 289 of these houses, containing 578 apartments; they have paid annually dividends of 5 per cent., besides a surplus of over 20 per cent. of the original capital, which is included in the total investment. It is an evidence of the advantage of hygienic homes for the working classes, and a sufficient justification and reward for this sort of philanthropy, entirely aside from the financial feature, that the death-rate among the tenants of these houses is considerably below the general mortality rates of the city. This is practical philanthropy which is worthy of serious consideration and general imitation.

SUPPORT THE HONEST MEDICAL JOURNAL

We have repeatedly called attention to the fact that physicians cannot consistently blame the lay press for carrying lying medical advertisements, so long as they support medical journals which are doing the same thing. Not, of course, that the medical journals advertise nostrums of the "patent medicine" type, but there are many in existence that carry advertisements of so-called ethical proprietaries (save the mark!) whose worthlessness is at least equal to that of the rankest "patent medicine" and the therapeutic claims for which are just as grossly false. The question of nostrum advertising in medical journals is one that can be settled definitely by the medical profession. If physicians will support those journals whose advertising pages are free from pharmaceutical humbugs, the problem is solved. In our previous notices of those independent medical journals, which strive for decency first and dollars afterward, one publication was inadvertently omitted. As the editor states in a letter that appears in this issue,[1] the *Cleveland Medical Journal*, more than a year ago, announced that it would eliminate from its pages, as fast as the contracts expired, all advertisements of medicinal preparations that did not comply with the requirements of the Council on Pharmacy and Chemistry. The last objectionable advertisement appeared in the July issue, and since that time, this journal's pages have been clean from cover to cover. There is no doubt that this stand has been taken at a great financial sacrifice; neither is there any doubt that all right-thinking physicians will approve of the stand; but mere approval will not pay the expenses of publishing a medical journal. The Ohio physicians in general and the physicians of Cleveland in particular should express their approval of clean medical journalism in a concrete and practical way.

1. Department of Correspondence, page 2080.

THE LOS ANGELES SESSION

As we look forward to the next annual session of the American Medical Association, it is a pleasure to note the activity of the Committee on Arrangements. The chairman, Dr. H. Bert Ellis, Los Angeles, has gathered about him a well-organized committee of the active men of Los Angeles, who are laying plans to show the United States what southern California hospitality means. They call attention to the fact that Los Angeles has several of the finest hotels in the world, as well as many mountain and seaside resorts, flower-laden orange groves, beautiful flower-gardens and parks. One of the complimentary trips will be to some of the orange-groves, where members will be allowed to gather the fruit from the trees. Another trip will be to the famous Catalina Island, twenty-five miles at sea, and will form an auspicious introduction to the Pacific Ocean. The ladies of Los Angeles also are planning to do their part in making the time pleasant for the ladies who accompany the members of the Association. It is not too early to lay plans for the annual outing of 1911, so that it may be taken in connection with the Association's scientific meeting, which is expected to be of the usual high quality. Dr. Ellis will be glad to answer any questions relative to local affairs, while plans for railroad accommodations may be discussed with Dr. M. L. Harris, Chicago, Chairman of the Committee on Transportation.[1]

1. A communication from Dr. Harris on the subject appears in the Department of Association News, page 2078, this issue.

SIMPLE METHOD OF WATER PURIFICATION

The following simple means of purifying drinking-water is recommended by the provincial health authorities of Ontario to campers, prospectors and travelers. A teaspoonful of chlorid of lime, leveled off by rolling a pencil over it, is rubbed up in a cup of water. This is diluted with three cupfuls of water, and a teaspoonful of this dilution is added to a two-gallon pailful of the water to be purified, mixing it thoroughly. This will give between four and five parts of free chlorin in a million parts of water, which is said to destroy in ten minutes all typhoid and cholera bacilli and dysentery-producing germs, at the same time leaving the water without taste or odor. This has been tried and found effectual, it is said, when used in the germ-laden water of Toronto Bay.

Unobserved Fractures in Early Life.—The child was nursed for three months, and then fed artificially until aged 1 year and 8 months. Then the child "became paralyzed" and screamed whenever he was picked up. *X*-ray photographs showed that there had been a fracture through the upper part of the shaft of the right humerus and another fracture through the lower end of the shaft of the left femur. There was a rachitic condition.—Harold Burrows, *Proc. Roy. Soc. Med.*, July, 1910.

Medical News

ARKANSAS

Death of Mrs. Sarah Collings.—The death of Mrs. Sarah Collings, the esteemed wife of Dr. Samuel P. Collings, Hot Springs, is reported. Mrs. Collings has been ill for several months, and her death is a severe shock and a distinct loss to the community, and the cause of deep grief to her many friends in Hot Springs and elsewhere.

Personal.—Dr. Fred Roberts, Lake City, has been elected president; Dr. Rufus W. Ratliff, Jonesboro, vice-president, and Dr. Charles M. Lutterloh, Jonesboro, secretary-treasurer, of the Craighead County Board of Health.——Dr. John P. Brown, Rogers, who has been seriously ill, is reported to be improving.——Dr. S. F. Walker, Texarkana, has been notified by the attorney general that he is entitled to his license to practice, having complied with the provisions of the act of 1903. ——Dr. Charles H. Cargile, Bentonville, was thrown from his buggy in a runaway a mile north of Rodgers, November 5, fracturing his leg.——Dr. John C. Hughes, Walnut Ridge, after a short trial, was exonerated from all blame in the killing of Alf. and I. K. Bagley, father and son, the killing being the termination of a feud.——Dr. Arthur G. Thompson has been elected president of the Pine Bluff Board of Health.

ILLINOIS

Fire in Tent Colony.—Fire at the Bartonville State Hospital, November 29, imperiled the fifty-six tuberculosis patients in that institution, but by energetic work on the part of the fire department of the asylum all were removed without casualty.

Chiropractor Fined.—Walter B. Vogel, a chiropractor of Mount Carroll, charged with practicing medicine without a license, is said to have been found guilty, November 23, and fined $200. The defendant gave bonds and says he will appeal the case.

Personal.—Dr. George S. Chalmers, Galesburg, who has been ill, is reported to be improving.——Dr. Fred H. Langhorst, Elgin, has returned from abroad and resumed the practice of his specialty.——Dr. St. Elmo M. Sala, Rock Island, has been elected president of the Rock Island County Society for the Prevention of Tuberculosis.——Dr. Arthur E. Lord, Piano, has returned from abroad.——Dr. Karl F. Snyder, Freeport, has entirely recovered from the accident sustained about two months ago and has resumed practice.——Drs. Joseph De Silva and Albert Nº Mueller have been appointed members of the board of directors of the Rock Island Public Tuberculosis Sanatorium.

Chicago

Personal.—Dr. William E. Morgan, who was operated on for appendicitis at Mercy Hospital recently, is reported to be well on the road to recovery.——Dr. Julia Holmes Smith is reported to be seriously ill at her home.

Additional Tuberculosis Nurses.—The directors of the Municipal Tuberculosis Sanatorium have added nine additional nurses to the dispensary department of the institution, bringing the total number of nurses now employed up to twenty-six.

Increase of Diphtheria and Typhoid Fever.—On account of the amount of diphtheria and typhoid fever in Chicago and the steady increase of the number of cases, the department of health has asked and received a special appropriation of $10,000 to be used in fighting the threatened epidemics of these two diseases.

Location for City Sanatorium Fixed.—The city of Chicago is said to have agreed on an eighty-five acre tract of land bounded by Foster, California, Olive, Western, Bryn Mawr Avenues and Rockwell Street, as the location for the new municipal tuberculosis sanatorium. The land is relatively high, being from 18 to 40 feet above the city datum, and is owned by Mrs. Julia F. Porter, who offers it to the city for $100,000.

INDIANA

Pure Drug Organization.—The Indiana Physicians' Pure Drug Association has recently been formed with the object of supporting the state and national pure drug organizations, with the following officers: president, Dr. Edmund D. Clark, president of the Indianapolis Board of Health; vice-presidents, Drs. Frederic C. Heath, Frank M. Morrison, Thomas C. Kennedy and I. H. Roberts, and secretary-treasurer, Dr. Charles E. Cottingham.

Personal.—Dr. Ora L. McCay has returned after a year's absence and resumed practice at Romney.——Dr. Oliver L. Rea, Culver, has moved to Rochester.——Dr. Halsted Murat, Indianapolis, has been appointed assistant physician at the Indiana Reformatory, Jeffersonville, vice Dr. Edward L. Swadener, resigned to enter the government Indian service. ——Dr. Thomas J. O'Neil, Anderson, has been seriously ill with septicemia due to an infected wound of the hand.——Drs. Ralph S. Chappell and M. Cortex Leeth, Indianapolis, have been appointed deputy coroners of Marion County.——Dr. William P. Lane has been elected president, and Dr. I. S. Milstone, secretary of the board of health of Gary.——Dr. Clarence L. Bell, Hartford City, is said to have been declared insane by a medical board recently.——Dr. John W. Snyder, Michigan City, has succeeded the late Dr. J. Lucius Gray, Laporte, as health officer of Laporte County.——Dr. Chester B. Crumpacker, South Bend, has been reelected physician of St. Joseph County.——Dr. Franklin C. Cregor, Greenfield, while making a professional call at the county jail, suffered the loss of a finger by the sudden closing of a heavy door.——Dr. James A. Rawley has leased a two-story house in Brazil, which he is equipping as a hospital.

IOWA

Fire in Tuberculosis Camp.—A fire in the attic of the administration building of the Tuberculosis Camp, Des Moines, November 11, almost destroyed the building with a loss of about $1,000.

Personal.—Dr. Aaron A. Noyes, Mason City, who is still in active practice, celebrated his 88th birthday, November 26. ——Dr. Nic. Gay O. Coad, Hull, and wife have started for the Isle of Pines to spend the winter.——Dr. Walter H. Grimwood, Fort Madison, was operated on November 23, for the removal of gall-stones.——Dr. P. F. Lange has been added to the staff physicians of the Iowa Institution for the Feeble-Minded, Glenwood.——Dr. S. Oliver Stockslager, Boone, is reported to be seriously ill.——Drs. Ray R. Harris and Mathias D. Linehan, Dubuque, have been appointed surgeons of the Burlington System between Dubuque, Lacrosse and Galena.

KANSAS

Tuberculosis Notes.—At a recent meeting of the Kansas Association for the Prevention of Tuberculosis in Topeka, it was decided that the association hire a visiting nurse to travel through the state instructing tuberculosis patients regarding the proper care of themselves and the protection of their families.——At the meeting of the commissioners of Shawnee County, held in Topeka, November 7, it was decided to appropriate $135 a month for the months from October to January, inclusive, for the benefit of the Antituberculosis Camp.

Personal.—Dr. Sarah A. Noble, Clearwater, has located in Chicago.——Dr. M. A. Barber, professor of bacteriology at the University of Kansas, Lawrence, will, it is reported, go to the Philippine Islands at the close of the present school term to spend two years in medical research.——Considerable damage was done by fire to the office of Dr. Simon Steelsmith, Abilene, October 25.——By the will of the late Mrs. Samuel Adams, Powhattan, $25,000 has been devised to Dr. Ralph L. Funk, Powhattan, family physician of the deceased, who was also appointed as executor.

KENTUCKY

Personal.—Dr. Frederick D. Cartwright has been appointed pension examining surgeon at Bowling Green.——Dr. M. L. S. Butner, Shelbyville, was operated on November 23, at Norton Memorial Infirmary, Louisville.——Dr. Bowers, Newport, has been elected a member of the board of health, vice Dr. John Todd, resigned, to accept the position of health officer.

Hospital May Occupy Medical Building.—The Board of Public Safety and Hospital Commission of Louisville are considering the advisability of using the building formerly occupied by the Kentucky School of Medicine as the temporary location of the City Hospital, pending the erection of new buildings. The building in question contains at present about fifty beds.

Jefferson County Institutions.—The grand jury, in its November report, criticizes the condition of the Home for the Aged and Infirm in not having separate quarters for the white and colored inmates; for the uncleanly condition of the bread storeroom, and for an inadequate sewerage system.——The county poor farm was found antiquated, the laundry methods were declared crude and uncomfortable, the cottages housing the inmates old and the heating system was said to be dangerous.——Comment is made on the fact that the excellent hospital department at the Kentucky Institute for the Blind has had no inmate for two years.

Cannot Recover from Medical College.—The Court of Appeals has reversed the decision of the Jefferson County Circuit Court, in which Dr. Harry A. Davidson sued to annul the contract and payment of notes for $8,000 which he gave in consideration of being appointed to the chair of diseases of women in the Hospital College of Medicine before that institution was merged with the Louisville Medical College. The court decided that Dr. Davidson had acquiesced in the merger, and had accepted an appointment in the new institution as professor, and was therefore barred from now making any complaint that the merger terminated the contract. By this decision Dr. Davidson must pay the residue of the notes which he gave for the purchase of the professorship.

MARYLAND

Personal.—The State Board of Health has appointed Dr. Frederick V. Beitler, Halethorp, chief of the Bureau of Vital Statistics, vice Dr. William F. Hines, Baltimore, deceased.——On the occasion of the resignation of Dr. Robert P. Winterode, pathologist at Spring Grove Asylum for the Insane, near Catonsville, he was presented by the nurses and attendants with a handsome meerschaum pipe.

Baltimore

College Suspended.—It is reported that Atlantic Medical College, formerly the Southern Homeopathic Medical College, has been suspended owing to lack of financial support.

Tags for Physicians' Carriages.—The city has issued new tags for the carriages and automobiles of physicians, which instead of the red cross now bear a blue cross on a white field.

New Home for Crippled Children.—Dr. R. Tunstall Taylor, director and chief surgeon of the Hospital for the Relief of Crippled and Deformed Children, Baltimore, announces that James Lawrence Kerman, a wealthy hotel and theatrical man of Baltimore, has purchased for the hospital a new location, known as Radnor Park, in the suburbs of the city. In its new quarters the institution will be known as the James Lawrence Kernan Hospital for the Relief of Crippled and Deformed Children. The property is beautifully located, and the large colonial mansion and other buildings will be utilized for hospital purposes, while other buildings will be erected as necessary. Mr. Kernan has also provided a magnificent permanent endowment for the institution. The present institution will be continued as a reception and emergency hospital.

MASSACHUSETTS

Medical Club Meets.—Brookline Medical Club, at its recent meeting, elected Dr. George W. Kaan, president; Dr. Robert W. Hastings, vice-president, and Dr. H. Hale Powers, secretary-treasurer.

Woman's Medical Society Meeting.—The regular meeting of the Woman's State Medical Society of Massachusetts was held in Boston, November 8. A review of the work of the society of the last year was given. Dr. M. Marie Knudson, sanitary inspector of the Food Department of the Woman's Educational and Industrial Union, presented her report, and Dr. Elias J. Dadmun, the president, gave an illustrated address on Oberammergau and the Passion Play.

What Is Being Done for Tuberculosis.—The New Bedford Antituberculosis Society moved its twenty-three patients from the old sanatorium building to the new infirmary near Sassaquin, November 29.——The special commission created by the last legislature to investigate and report on a system of caring for tuberculosis patients by state and local authorities recommends that from 5,000 to 6,000 additional beds be provided for such patients, that $5 a week be paid by the state for each non-paying tuberculosis patient in the local hospital, and that a system be established whereby tuberculosis patients may be supplied with food at their homes. The commission finds that there are now about 35,000 cases of tuberculosis in the state, and that for the accommodation of these patients there are at present 2,773 beds in hospitals and sanatoriums.——Fall River has permitted the use of its contagious disease hospital for tuberculosis patients, and fifty have been removed to the institution from the sheds on the Highlands.——Dr. Ralph B. Ober has been elected president of the Springfield Antituberculosis Association, vice Dr. Herbert C. Emerson.

MICHIGAN

The Small-Pox Situation.—The general quarantine against Saginaw was raised December 1, by proclamation of the mayor and on statement of the actual conditions. On October 17 and 18, forty-five cases of small-pox were reported in different parts of the city, and by November 7, 102 cases of small-pox had been reported with twenty-six deaths. Nearly all of the forty-five cases first reported were of the confluent type, and almost all the deaths were among patients of this class. General vaccination has practically stamped out the epidemic, and the expectation is that few more cases or deaths will occur.

MINNESOTA

County Society Meeting.—Mower County Medical Society, at its annual meeting in Austin recently, elected Dr. Charles F. Lewis, president; Dr. G. M. Frank Rogers, vice-president; Dr. Clifford C. Leck, secretary, all of Austin; and Dr. George J. Scottler, Dexter, treasurer.

Plan Sanitarium for Nervous Diseases.—Drs. Arthur Sweeney and Haldor Sneve, St. Paul, and William A. Jones, Minneapolis, have asked authority from the St. Paul City Council to erect a sanitarium in St. Paul, to cost $100,000, for the treatment of nervous diseases.

Unvaccinated Students Excluded from Classes.—By order of President Northrup of the University of Minnesota, about 350 students who had failed to comply with the law that all students should be vaccinated within three days after exposure to small-pox or be excluded from recitations for three weeks, have been excluded from classes.

Home for Crippled Children.—The new Home for Crippled and Deformed Children, adjoining Lake Phalen, St. Paul, is completed, and the installation of the equipment is all that remains to be done before the 100 children, who are now being accommodated in the City Hospital, can be transferred. It is expected that the institution will be fully equipped and ready for occupancy January 1.

Model Isolation Hospital.—Dr. Henry M. Bracken, secretary of the State Board of Health, has been instructed to have plans drawn for an isolation hospital in which to care for persons afflicted with epidemic diseases. This plan is to be kept in the office of the Board of Health and is to be used as a standard for all cities and counties in Minnesota which desire to erect such a building.

Personal.—Dr. Thomas G. Lee, Minneapolis, has returned from Europe.——Dr. Ignatius J. Murphy, Minneapolis, has been appointed inspector of the health department and assistant to Health Commissioner Henry E. Webster.——Dr. Joseph Nicholson, Brainerd, has recovered his health and resumed the management of the Northwestern Hospital.——Dr. Joseph D. Budd, Two Harbors, has been elected president of the Lake County Antituberculosis Society.

MISSOURI

Cocain Peddlers Fined.—Six men, convicted of peddling cocain in Kansas City, were fined sums aggregating $700, November 14. One of the individuals, said to be the executive head of the outlaw cocain business, was fined $200.

New Buildings and Betterments Needed for State Hospital.—New buildings to cost $35,000 are needed at State Hospital No. 2, St. Joseph, and requisitions for betterments and repairs to the old buildings amounting to $50,000 have also been made by the board of managers.

Tag Day in Kansas City.—The Kansas City Hospital Day Association realized $8,430.77 as the proceeds of its third annual tag day, November 19. This money will be divided among the German, Swedish, St. Luke's, St. Mary's, Baptist, Kansas City Post-Graduate and St. Anthony's hospitals, the Florence Crittenden Home and the Visiting Nurses' Association.

Society Meetings.—The seventy-first semiannual meeting of the Rolla District Medical Society was held in Rolla, November 18, and the following officers were elected: president, Dr. Charles F. Briegleb, St. Clair; vice-president, Dr. Samuel B. Rowe, Rolla, and secretary-treasurer, Dr. William H. Brewer, St. James. The next meeting will be held in St. James in May.——The Linton District Medical Society met in Mexico, November 16, and elected the following officers: president, Dr. Frank G. Nifong, Columbia; vice-presidents, Drs. Arthur R. McComas, Sturgeon, and Robert C. Strode, Mexico; secretary, Dr. R. T. Gibbs, Mexico; and treasurer, Dr. Ned R. Rodes, Mexico.——St. Charles County Medical Society, at its annual meeting, November 16, elected the following officers: president, Dr. Samuel R. Johnson; vice-president, Dr. Benedict P. Wentker; secretary, Dr. Thomas L. Hardin; treasurer, Dr. Carl H. Bitter; and censor, Dr. Frank J. Tainter, all of St. Charles.

NEBRASKA

Colored Physician Not Guilty.—Dr. C. A. Flippin, Grand Island, charged with performing a criminal operation which resulted in the death of Julia Kath at Stromsburg, has been acquitted.

Insurance Companies Lose Suit.—The accident insurance companies which had policies on the life of the late Dr. Frederick Rustin, Omaha, have been defeated in their suits to recover the $31,000 insurance involved in the case.

District Society Organized.—Physicians of Chase, Hayes, Dundy and Hitchcock counties met in Wauneta recently, and organized a medical association and elected Dr. Anderw B. Fellers, Palisade, president; Dr. C. E. Stewart, Imperial, vice-president, and Dr. Albert J. Boren, Palisade, secretary-treasurer.

Personal.—Dr. Walter O. Henry has resigned the chair of gynecology in Creighton Medical College, Omaha.——Dr. Louis L. Henninger has located in Omaha as a specialist in diseases of the eye, ear, nose and throat.——Dr. Oscar H. Hahn, Home, Kan., has been appointed medical superintendent of the Nebraska Sanitarium, Hastings.

NEW JERSEY

Hospital Site Abandoned.—Because of the many protests made, the Morris County Antituberculosis Society has abandoned the site in Morris Plains for its sanatorium for tuberculosis.

Personal.—Dr. William D. Miningham, Newark, has started on a trip around the world.——Dr. Frank R. Sheppard, of Millville, made a misstep in the dark, December 1, and fell down a flight of steps, sustaining a fracture of the ankle.——Dr. Herbert Willis, Beach Haven, has been appointed medical examiner of public schools of Tuckerton.

Ice Cream Inspection.—At the meeting of the National Association of Ice Cream Manufacturers held at Atlantic City during the past week, it was announced that out of fifty-one ice cream factories in the state, only fifteen were found that met with the requirements of the law. As a total of 3,000,000 quarts were manufactured in these fifty-one factories during the year, the necessity for laws requiring proper sanitation and greater cleanliness was emphasized.

Children's Seashore House Always Open.—The improvement in chronic cases sent to the Children's Seashore House, Annapolis and Atlantic Avenues, Atlantic City, N. J., chiefly from the hospitals of Philadelphia, in January, 1910, has inspired the management to keep it open the year round. Tuberculous cases are given preference, both in admission and length of stay, but convalescents from acute diseases and other children likely to be benefited by a short stay at the seashore will also be received as there may be room. Cases of pulmonary tuberculosis are not received. Only children between 4 and 12 years of age can be admitted in the winter. Those able to pay are charged $2 a week or less, but no child will be refused admission because of inability to pay. The services of a teacher have been provided for the instruction of such of the chronic invalids as are in a condition to be taught. Those who are able, go to a large sunny school room right on the beach, while those confined to bed are taught in the wards or on the porches.

NEW YORK

Physical Test for Marriage.—A bill drawn by Mrs. Harriet Johnston-Wood and endorsed by the City Federation of Woman's Clubs, is to be introduced into the legislature this session, which provides that all applicants for marriage license shall be obliged to present a clean bill of health.

To Fight Infantile Paralysis.—A request will be made to the new legislature for a special appropriation to permit the State Health Department to make a thorough investigation of the causes and the steps to be taken for the prevention of infantile paralysis. The proposition has the endorsement of the health officers of the state.

Another Typhoid Carrier.—A man who is known as "Typhoid John" is giving the State Health Department and the New York Milk Committee some concern. Last summer there were thirty cases of typhoid in an Adirondack camp. The water and milk supplies were above suspicion. The last person to handle the milk was an Adirondack guide, and he was found to be a typhoid carrier. The man is willing to be treated, which is fortunate, since there is no state law under which he could be detained had he objected.

An Important Court Decision.—Holding that municipalities have no right to pollute public water-courses through their sewage systems the Supreme Court has granted an injunction restraining the village of Sharon Springs from polluting the waters of Brimstone Creek, the waters of which are used by property owners along its course for dairy purposes. The defense of the village was that the state had approved the plans of its sewage system. This was a test case, there being fifty similar suits pending. The court held that it was the policy of the state that water-courses be maintained in a pure and wholesome condition, and that in granting aid to municipal corporations to install sewer systems, the right to maintain a public nuisance was not conferred.

New York City

Flexner Operated On.—Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, who was operated on for appendicitis at the Presbyterian Hospital, December 4, is reported to be doing well.

Fined for Selling Prayers.—Mrs. Eva Stein has paid a fine of $500 in Special Sessions for violating the medical law. She told the agent of the New York Medical Society that the latter had rheumatism and that she would guarantee a cure. She wrote prayers which were to be repeated, and sold them for 15 cents each.

Easy to Buy Red Cross Seals.—The Committee on the Prevention of Tuberculosis of the Charity Organization Society reports through its sales manager that more than 1,800 agencies for the sale of the Red Cross Christmas seals have been opened in Manhattan and the Bronx. They are on sale at every ticket booth of the Hudson tunnel system; all the news stands of the elevated roads also sell the seals. Gifts of advertising space have been made by many of the newspapers and also space in the street cars and in the windows of many stores.

A Good Summer for Babies.—The statistics from St. John's Guild, which operates the Sea Side Hospital, New Dorp, S. I., show that during the past summer the Guild cared for 2,400 mothers and children, 290 less than during the previous season. The number of hospital days of treatment was 20 per cent. less than during the summer of 1909. There were only thirty-eight deaths compared with fifty-one for the summer of 1909. It has been recommended that this hospital, which lies idle during eight months of the year, be used as a convalescent home for infants and their mothers.

The Conference on the Milk Problem.—The conference held under the auspices of the New York Milk Committee at the United Charities Building, passed resolutions advising the investigation of milk production, transportation and distribution, labeling, pasteurization and cooking of milk, and recommending to the city health authorities that special milk for 500,000 infants and children under 5 years of age be immediately obtained. The president of the Board of Aldermen spoke of the city's appropriation of $40,000 to investigate methods of furnishing pure milk. Julius Mildenhawer, assistant in the New York State Agricultural Department, stated that the milk supply was better and safer to-day than ever before. Prof. William T. Sedgewick of the Massachusetts Institute of Technology, was of the opinion that cooked milk, though not so palatable, was by far the safest.

NORTH DAKOTA

Society Meetings.—The Grand Forks Medical Club, at its annual meeting November 4, elected the following officers: president, Peter Neatos; vice-presidents, Herbert Movius and Joseph Martineau, and secretary-treasurer, Fred DuBois.——The Grand Forks Public Health League, at its annual meeting, elected the following officers: president, Dr. Gustave F. Ruediger; honorary vice-presidents, President McVea of the University and Dr. George M. Williamson; and vice-president, Dr. Anders A. Westeen.

Personal.—Dr. John C. Smith, Thompson, has been appointed physician for District No. 3, Grand Forks County, to fill the unexpired term of Dr. Frederick V. Lyman, Thompson.——Dr. William C. Eichler, Underwood, suffered a loss of $500 by fire in his office, November 10.——Dr. and Mrs. Martin W. Roan, Bismarck, have returned from Europe.——Dr. John D. Taylor, Grand Forks, has started for Europe.——The branch station of the North Dakota Public Health Laboratory is to be established at Bismarck under the charge of Dr. Carl T. Raven, formerly city bacteriologist of Oklahoma City.

OHIO

Sanatorium Cottages Opened.—Eight new cottages are now practically completed at the State Sanatorium, Mount Vernon, which will increase the capacity of the institution to more than 200.

Fail to Report Births.—Health Superintendent Ford of Cleveland declares that of 1,400 deaths of infants reported during the last two years not one birth certificate has been filed.

He believes many women are practicing midwifery in the city without license.

Faculty Changes.—Dr. Lyman A. Brewer, associate professor of surgery in Toledo Medical College, has been elected dean of the college, vice Dr. James Donnelly, deceased.——Dr. Perry C. Pike of the University of Pennsylvania has been made professor of physiology in Toledo Medical College.

Alumni Meeting.—The third annual meeting and banquet of the Starling-Ohio Medical Alumni Association of the Miami Valley was held in Dayton, November 22, and the following officers elected: president, Dr. Francis C. Gray, Dayton; vice-president, Dr. Elwood E. Bevington, New Paris; secretary, Dr. G. W. Riehe, D.D.S., Dayton; treasurer, Dr. S. Edwards Hendren Dayton, and trustee, H. L. Oliver, D.D.S., Dayton.

Personal.—Dr. Adam L. Jackson, Zanesville, is said to have suffered a cerebral hemorrhage, November 19, and to be in a critical condition.——Dr. Richard A. Bolt, Cleveland, has been appointed medical director of the College of Young China near Pekin. He will teach anatomy, physiology and hygiene.——Dr. William H. Harper, Columbus, received injuries about the legs in a collision between his automobile, a bakery wagon and a street car, November 21.——Dr. George S. Weger, Delphos, is said to have retired from practice to become secretary-treasurer and general manager of the Mueller Implement and Auto Company of that city.——Dr. William F. Teegarden, Columbus, charged with selling liquor in a prohibition district, is said to have pleaded guilty at Marysville, November 12, and to have been fined $75 and costs.

PENNSYLVANIA

Anniversary of Academy.—The Harrisburg Academy of Medicine celebrated its fifteenth anniversary, November 25. Dr. Judson Daland, Philadelphia, delivered an address. Dr. William J. Middleton, Steelton, president, was in the chair, and after the ceremonies, a banquet was served at the Commonwealth Hotel.

Norristown Asylum Report.—The annual report of the Norristown Hospital for the Insane, claims for this year the largest percentage of patients restored since its foundation. Since it was founded, 30 years ago, there have been 13,715 patients treated at the institution. Of these 2,911 have been discharged as restored, 1,991 have improved, 922 are unimproved, 38 were decided not insane and 4,943 died.

Personal.—Dr. Cornelius C. Wholey has been appointed a member of the staff of the St. Francis Hospital, Pittsburg, in charge of the inebriate department.——Dr. Cyril H. Haas, Selinsgrove, is going as medical missionary to Turkey.——Dr. C. Montgomery, resident physician at the Punxsutawney Hospital, was attacked by an insane patient and was saved from severe injury or death only by the timely arrival of assistance.

Medical Club Organized.—The physicians of Armstrong, Butler, Clarion and Venango Counties have formed an organization known as the Foxburg Medical Club, which meets in that city weekly. The object of the organization is the study of medicine in its various phases. At each session, after the scientific papers and discussions are finished, a social hour is spent at lunch at the Foxburg Inn, at which, by common consent, medical subjects are tabooed.

County Societies Elect.—At the annual meeting of the Bucks County Medical Society, in Doylestown, November 9, the following officers were elected: president, Dr. William Martin, Bristol; vice-presidents, Drs. Frank B. Swartzlander, Doylestown, and Harry L. Thomas, Langhorne; secretary-treasurer and reporter, Dr. Anthony F. Myers, Blooming Glen, and censors, Drs. George M. Grim, Ottsville, William R. Cooper, Point Pleasant, and Walter H. Brown, Richlandtown. ——A public meeting of the Greene County Medical Society was held in Waynesburg, October 25, when the following officers were elected for the coming year: president, Dr. Thomas L. Blair, Waynesburg; vice-president, Dr. B. L. Cowan; and secretary, Dr. Thomas B. Hill, Waynesburg.

Philadelphia

DaCosta Dead.—As we go to press the notice of the death of Dr. John C. DaCosta, on December 6, is received.

Bottlers Plead Guilty.—Pleading guilty to charges of adulterating their bottled drinks with saccharin, preferred against them by Harry P. Cassidy, special agent of the State Dairy and Food Commission, ten bottlers were fined $25 and costs, November 29.

Measles on Steamship.—The North German Lloyd steamship *Cassel*, from Bremen, which docked November 30, carried more than 1,500 cabin and steerage passengers. A baby died at sea of measles and sixteen other children in the steerage were found to have the same disease and were all sent to the Philadelphia Hospital.

Donation and Bequest.—A donation of $5,000 to the endowment fund of St. Timothy's Hospital has been made by Mrs. Elisabeth L. Clark, in memory of her son, Robert C. Clark. The hospital board will erect a bronze tablet marking the Robert C. Clark bed in perpetuity.——The will of the late Robert O'Donnell bequeaths to St. John's Orphan Asylum and the Little Sisters of the Poor, $1,000 each; to St. Vincent's Home for Infants, St. Vincent's Maternity Hospital, and the Home of the Good Shepherd, $500 each.

Medical Portraits for the University.—Julian Story, the artist, is painting a portrait of Dr. Samuel G. Dixon, State Health Commissioner, which will be hung in the laboratory of pathology at the University of Pennsylvania. The university is also having painted, by Hugh Henry Breckenbridge, a portrait of Dr. James Tyson, recently elected emeritus professor of medicine. A portrait of Dr. Louis Starr, who from 1884 to 1890 was clinical professor of children's diseases, is being painted by Joseph de Camp, and Dr. Simon Flexner, of the Rockefeller Institute, who was professor of pathology from 1899 to 1904, is also sitting for a portrait.

Increased Health Budget.—The Council's Committee on Health and Charities has approved the budget of the department of Health and Charities for 1911, in which Dr. Joseph S. Neff asks an appropriation of $7,127,562 as compared with an appropriation for the current year of $1,016,393. The budget includes an item of $5,000,000 for hospital buildings for the insane on the 800 acres of city land at Byeberry; an item of $100,000 for the Home for the Feeble-Minded; $150,000 for new boilers, dynamos and buildings at the General Hospital; $35,000 for additional fireproof bridges at the Philadelphia General Hospital, and $15,000 for a tuberculosis sanatorium at Byeberry.

Personal.—Dr. Howard S. Anders has been elected fellow of the Royal Meteorological society of London, on account of a series of investigations relating to weather phenomena and influenza epidemics, published since 1890 in the Transactions of the American Climatological Association.—— Dr. Claude A. Dundore is spending the winter in Colorado.—— Dr. Benjamin A. Thomas has been elected professor of genito-urinary surgery in the Polyclinic Hospital.——Dr. Thomas S. Githens has been appointed to a fellowship in the pharmacologic department of the Rockefeller Institute for Medical Research.——Dr. Louis Mutschler, assistant surgeon in the Episcopal Hospital for ten years, has been elected surgeon.

SOUTH DAKOTA

Personal.—Dr. Charles M. Hollister has been appointed surgeon for the Chicago Northwestern Railroad at Pierre, vice Dr. De Lorme W. Robinson, deceased.——Dr. Frank H. Cranmer has been appointed local surgeon of the Milwaukee System at Dupree.

New County Society Meeting.—The Gregory County Medical Society was recently organized at Dallas, and the following officers were elected: president, Dr. Harry A. Murnan, Gregory; vice-president, Dr. Edwin B. Bradley, Burke; and secretary-treasurer, Dr. Thomas R. Castles, Dallas.

State Society Meeting.—The South Dakota State Medical Association held its twenty-ninth annual meeting in Hot Springs, September 27-29. Dr. Hans M. Finnerud, Watertown, was elected president; Dr. Charles E. McCauley, Aberdeen, vice-president; and Dr. Robert D. Alway, Aberdeen, secretary-treasurer. The next meeting will be held in Pierre in June, 1911.

District Society Meets.—The physicians of Pennington, Custer, Fall River and Stanley counties have organized a district society, to be known as the Hot Springs District Medical Society No. 10, and have elected the following officers: president, Dr. Frederick E. Walker, Hot Springs; vice-president, Dr. Frederick W. Minty, Rapid City; and secretary-treasurer, Dr. William E. Robinson, Rapid City.

Black Hills Physicians Hold Meeting.—At the annual meeting of the Black Hills Medical Association, held in Deadwood, November 17, the following officers were elected: president, Dr. Frank S. Howe, Deadwood; vice-president, Dr. Arthur S. Hoon, Nemo; secretary, Dr. Walter L. Vercoe, Lead; treasurer, Dr. Francis E. Clough, Lead; delegates to the state society meeting, Drs. John W. Freeman, Lead, and Frederick A. Brandt, Sturgis; and censors, Drs. John R. Nilsson, Lead; Charles Richards, Sturgis, and Herman F. Ratte, Rapid City

VIRGINIA

Personal.—Capt. Lyle F. Hansbrough, Front Royal, has resigned from the Medical Corps, Virginia Volunteers.——Dr. Robert C. Randolph, Boyce, is reported to be seriously ill with typhoid fever in Winchester Memorial Hospital.——Dr. Lewis B. Firey, Norfolk, was attacked in his office by two men, November 21, bound hand and foot to a chair, and robbed of $24.

Advocates Hospital for Inebriates.—In the annual report of Dr. John C. King, superintendent of the Southwestern State Hospital for the Insane, Marion, he advocates a separate institution for the care and treatment of individuals addicted to the liquor or drug habit.——Four new buildings have been completed at the State Sanatorium, Catawba, near Salem, which will increase the capacity of the institution to 118.——The new Municipal Tuberculosis Hospital Camp in Henrico County, near Richmond, narrowly escaped destruction by a field fire, November 24.

Medical Society Meetings.—The annual meeting of the Petersburg Medical Faculty was held November 17, and the following officers were elected: president, Dr. W. Preston Hoy; vice-presidents, Drs. Julian R. Beckwith and Robert A. Gamble; corresponding secretary, Dr. Hampden A. Burke, and secretary-treasurer, Dr. William C. Powell.——Rockingham County Medical Society has elected Dr. John F. Wright, Keezletown, president; Dr. Ashby C. Byers, Lacey Spring, vice-president, and Dr. John M. Biedler, Harrisonburg, secretary-treasurer.

GENERAL NEWS

International Dermatologic Congress.—The seventh international congress for dermatology and syphiligraphy will meet at Rome, Sep. 25 to 29, 1911. The questions appointed for discussion are the treatment of syphilis, physiotherapy in treatment of skin diseases, and blastomycosis and sporotrichosis and their relations with analogous affections.

International Prize for Work in Obstetrics and Gynecology.—The surplus left from the international congresses for gynecology and obstetrics in 1892 and 1895 amounts now to about $6,000, and at the fifth congress, recently held in Russia, it was decided to devote most of the income to an international prize for some important achievement or work in the line of obstetrics or gynecology, to be awarded at future congresses. The next congress is to be held in Berlin in 1912. Eclampsia is the chief topic appointed for discussion.

International Hygiene Exposition.—The Germans are making every effort to render the Hygiene Exhibition at Dresden in 1911 an epoch-making educational force, concentrating the results of advanced hygiene and sanitation as achieved in the various countries of the world into a grand object-lesson for comparison and the triumph of the fittest. The exhibition, to which several references have been made in THE JOURNAL, includes the five sections, the Scientific, the Historical, the Popular, the Section of Sports and, inseparably connected with them all, Industrial Conditions. The Popular Section is devoted to the whole province of the hygiene of the individual, how to maintain health and strength and improve it under all conditions, and how to rouse the people to a consciousness of the significance and importance of legislative measures enacted in the interests of health protection. The various countries are taking a practical interest in the exhibition, Russia having appropriated 102,000 roubles, over $50,000, and Japan having recently increased its appropriation from $125,000 to $165,000, and speaking for over 1,500 square yards of floor space. The third series of Olympian games is to be held in connection with the exhibition, July 8 and 9, concluding with a climbing trip through the mountainous district nearby. A number of national congresses dealing with matters more or less connected with hygiene are also to be held in connection with the exhibition, the dates of several French congresses of the kind being already announced; among them are the Société Française des Habitations à Bon Marché, several engineering and architect societies, women's clubs, labor unions, etc. Our British exchanges are lamenting that the British government referred to the Board of Trade the invitation to participate in this exposition, and the latter declined, as it had already three industrial expositions on its hands—Brussels, Turin and Rome—so that they say that Great Britain is the only great power which is not to be officially represented. The publicity bureau is issuing once or twice a month for free distribution a circular of "social-hygienic correspondence," which contains many interesting items and data. Address H. Pfeiffer, Zwickauerstrasse 35, Dresden, Germany. Further details of the exposition and its organization were given in THE JOURNAL, Oct. 1, 1910.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Nov. 18, 1910.

Professor Gaucher on Arsenobenzol ("606")

Professor Gaucher, who has succeeded Professor Fournier in the clinic of cutaneous and syphilitic diseases of the Paris medical college, has just devoted one of his clinical lessons to the treatment of syphilis by Ehrlich's method and, in the last session of the Académie de Médecine, he made a report on the same subject. From his personal observation he believes that arsenobenzol does not deserve the name of *therapia sterilisans magna* which Ehrlich has given it. The relapses and the appearance of new manifestations after the injection of this remedy have become innumerable. General paralysis, tabes, the visceral lesions and the quaternary or parasyphilitic lesions, such as lingual leukoplasia, are absolutely intractable to "606." Other forms of syphilis are cured as slowly with "606" as with mercury and potassium iodid. This is particularly the case for the ulcerated gummata. On the other hand, superficial ulcerations and erosive mucous plaques improve very rapidly under "606." Ulcerated and papulous mucous plaques improve much more slowly and sometimes are altogether intractable. Erosive or ulcerated chancres are very quickly cured, but papulous hypertrophic chancres of the skin are cured more slowly. Dry cutaneous lesions are commonly less quickly influenced than ulcerated lesions and often even resist treatment altogether. As for papulous and tubercular lesions, they are cured less rapidly by "606" than under the classical treatment. However, arsenobenzol sometimes gives remarkable results for the tubercular syphilides, as for gummata in cases in which mercury has failed. Gaucher believes that "606" is a remedy which has come to stay but to be used only exceptionally. In most cases, mercury treatment ought to be relied on and it ought always to be used first, arsenobenzol being employed only when the patient is intolerant of mercurial preparations or when the latter are ineffective or insufficient. Cases in which mercury is sufficient are very rare, so that there are few indications for the "606." Moreover, it is not a practical remedy. Gaucher has seen patients much weakened by injections; one lost 12 and another 14 kilos (26 and 30 pounds).

Contagiousness of Malta Fever

At the last session of the Académie de Médecine, Professor Widal reported a case of Malta fever which occurred in his own laboratory in an attendant who had taken care of cultures of *Micrococcus melitensis*. In laboratories where the agglutination reaction for Malta fever is often produced, cultures killed by formaldehyd vapor should be used. Moreover, since cases of Malta fever have multiplied in France in the last few years, goats' milk ought not to be used unboiled. The importation of goats from the island of Malta ought to be prohibited in French ports as it has already been in the ports of Tunis. On the motion of Dr. Widal, the academy passed a resolution that Malta fever ought to be included in the list of diseases compulsorily reportable.

Professor Grasset on the Medical Crisis

At the opening session of the University of Montpellier, Professor J. Grasset made an address in which he answered objections to the *concours d' agrégation*. He believes that the training of the clinician in Germany and in England is much inferior to that in France. In Grasset's opinion, the German privat-docent system is the most undemocratic imaginable. He declares that it is not the preservation or suppression of the *concours* that ought to cause disquietude; it is something more serious: the "phobia of inequality" with which the medical profession is imbued.

Plans for the Formation of a Medicolegal Institute

In one of my previous letters (THE JOURNAL, Jan. 15, 1910, p. 215) I noticed the plan for the reorganization of the morgue. The Minister of Public Instruction has just presented a bill for the foundation in Paris of a medicolegal institute, comprising all the administrative and educational services installed in the morgue building, which will make investigations to identify unknown bodies, perform judicial necropsies and give expert medicolegal opinions as well as instruction with laboratory and practical work in legal medicine. For instruction and scientific research, the institute will be connected with the Paris Medical college, which will have free disposition of unclaimed bodies left in the institute.

Abuse of the Red Cross Emblem

In *Caducée*, a journal of military medicine, Dr. Granjux has undertaken a campaign for the prohibition of the abuse of the

Red Cross emblem in France. At the time of the revision of the Geneva Convention, in 1906, an article was voted requiring all the states which signed the convention to prevent the use of the emblem and even the name of the Red Cross or Geneva Cross by private individuals or by societies not entitled to it, and especially for commercial purposes as a trade-mark. A maximum period of five years was allowed the governments to put these measures into effect. Some countries have already forbidden the abuse of the emblem, but in France one may still see used red crosses on the signs of pharmacists, on nurses' houses and on ambulances.

Homage to Professor Bernheim

On the retirement of Dr. H. Bernheim, professor of clinical medicine at the Nancy medical college, his collaborators and friends presented him with an artistic medal. Several addresses were given, especially by Dr. Gross, dean of the Nancy medical college and by M. C. Adam, rector of the university. Dr. Bernheim gave an interesting review of his whole life, first in Strasburg before the war of 1870-71, then in the army ambulance service during that campaign and finally, since 1872, at Nancy, where he has been occupied since 1883 with the subject of suggestion, taking sides against the school of the Salpêtrière represented by Charcot.

Measures Against Alcoholism

Taking the stand that the greater number of crimes committed are the direct result of alcoholism and that the latter constitutes a veritable social scourge which must be checked most energetically, the jury of the Seine in November passed the following resolution: (1) that every individual found drunk on the public thoroughfare ought to be immediately arrested and brought before the courts; (2) that for ten years, all granting of licenses ought to be absolutely prohibited.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Nov. 10, 1910.

Suicide Statistics

According to the statements made by Dr. Schilling, the frequency of suicide in Europe has increased since 1831 by 400 per cent., while the growth of the population is only 60 per cent. From 1869 to 1872 there were 72 suicides to 1,000,000 inhabitants in Prussia, while from 1891 to 1900 there were 80,518. In the German empire the number of suicides for 1881 was 9,944; for 1903, 12,730. Even the suicide of children has continually increased. Only in a few countries, such as Norway, Denmark and Spain, has the number of suicides decreased. In addition there is no doubt that, as a rule, the number of suicides is materially larger than the official figures, as cases of suicide are frequently concealed. Among the methods, hanging is most frequently employed. Of 100 suicides during the years 1883 to 1890, 57.3 to 62 hung themselves, 17 to 20 drowned themselves, 9.4 to 12.6 shot themselves, and in the fourth place come those who stab themselves and fifth, those who take poison. More unmarried persons kill themselves than married, more single women than single men, more widowers than widows. Among motives, love and jealousy predominate among the women; alcoholism furnishes many victims. As to age, a suicide under five is scarcely known and the rate constantly increases from five to twenty-five and then falls off somewhat until the fiftieth year, and again increases during old age. Suicide is scarcely influenced by climatic conditions, but the season of the year has an especial importance. In summer the cases are most frequent and least so in December. Also with reference to the time of day there are differences. The largest number of suicides occurred between 6 and 12 a. m. and 2 to 6 p. m. With reference to profession and occupation, there were in Prussia from 1883 to 1890 for 100,000 inhabitants only 40 suicides among those in business for themselves, 61 among public officials, 63 among private officers, 40 among laborers and servants, 59 among persons in the army, 84 among those having incomes and pensions and 67 among the recipients of charity.

Alcoholism and Mental Diseases

From his investigations in the insane asylum at Frankfort a. M., on the question to what extent alcohol is to be regarded as the cause of insanity, among a total of 2,032 who were received in 1907-08 with a history of alcoholic antecedents, Dr. Sichel found drunkenness of the parents or near relatives in 308 cases. The alcoholic taint was distributed as follows among the various forms of mental disease: Chronic alcoholism 39.9 per cent.; imbecility and idiocy, 16.4 per cent.; dementia præcox, 14.3 per cent.; depressive mania, 3.6 per cent.; epilepsy, 15.2 per cent.; hysteria, 7.5 per cent.; traumatic psychoses, 0.6 per cent.; paralysis and organic psychoses, 4.6 per cent.; senile psychoses, 1.6 per cent.; psychoses of other forms, 2.3 per cent.; psychoses and alcoholism, 17.2 per cent. The fact first recognized by Sioli that there is a homogeneous inheritance of particular forms of mental disease is also evident here; two-fifths of the patients tainted by the drunkenness of their parents become drunkards, and alcohol plays a large rôle in the psychoses of another fifth. The majority of the patients were received on account of alcoholic disturbances, especially delirium tremens. Next in frequency come epilepsy and dementia præcox. With reference to the other psychoses, it should not be overlooked that in addition to alcoholism in many cases there were other forms of inherited taint.

Those with alcoholic inheritance show in comparison with other insane a predominance in the first decade; the children of drunkards need institutional treatment earlier than others. Among the 308 patients there were thirteen children of and under school age. The maximum of admissions among those with alcoholic taint, as well as with other mental diseases, falls in the fourth decade. The data with reference to the offspring of patients coming from families of drunkards are below the reality, as they represent a minimum obtained from the historical data. The percentage of sterile marriages is strikingly large: Among 130 married patients, 22 marriages were without offspring (not even stillbirths or miscarriages); of 10 marriages nothing could be learned. From the remaining 98 marriages there were 205 children who might be designated as healthy, and 118 of whom no exact information could be obtained; 52 were not carried to full term; 20 were stillborn; 75 died soon after birth, 21 of convulsions, 22 of infectious diseases. Altogether 200 individuals perished at birth or soon after. Among the survivors, diseases of the nervous system appeared at an early date in a considerable percentage. Here the figure obtained is surely below the truth. Some were already in institutions, others had left home and were lost sight of. The patients of the institution are drawn from all classes of the population but the group under consideration belongs in the great majority to the lower classes. Among the victims of alcoholism the effort to raise their offspring above their own social level appears to be totally lacking; 61 per cent. of the patients were paupers.

On the relations of alcoholism to etiology of epilepsy, Dr. M. Müller has investigated the material of the Swiss institutions for epileptics. The material of the Zürich institute for the years from 1896 to 1907 showed that among 503 patients admitted, a history of alcoholic taint was obtained in 369 cases. These showed alcoholism in the progenitors in 33.99 per cent.; psychoses and neuroses in 29.52 per cent.; epilepsy in 10.13 per cent. He remarks that collective statistics cannot lead us much further in the investigation of the conditions of heredity but that there is need of study of the individual family in order to gain a deeper insight into the matter. He has the tabulated details for thirty families all of which show analogous conditions. The number of inferior members is very large. The appearance of affections of the nervous system and of other organs, such as tuberculosis and carcinoma, is frequent. The parents of the patient show no abnormalities, but the grandparents and the collateral lines on the mother's side are characterized by abnormalities of all sorts. The inferior germ plasma came into the family through the mother and this inferiority was occasioned by the alcoholism of the grandparents; in the mother it remained latent. Epilepsy in these families is of a severe type and associated with physical inferiority. Very often the only heredity in the direct line of the mother is alcoholic and the healthy germ plasma of the father is unable to neutralize this injurious influence. The simultaneous occurrence of alcoholism or alcoholic taint on the paternal side is correspondingly graver. As to the relations of individual alcoholism to epilepsy, Müller is of the opinion that an epilepsy generated by the use of alcoholic drinks in a healthy constitution does not exist, but that the use of alcohol in a nursing woman may produce epileptic convulsions in the infant.

Bill for a Law Against Quackery

The antiquackery bill which I mentioned some time ago has just passed the senate. Whether it will meet the wishes of the medical profession and is suited to restrain the growth of quackery remains to be seen. Also it is a question what position the Reichstag, the lower house, whose consent is necessary for the enactment of the law, will take in reference to this bill.

VIENNA LETTER

(From Our Regular Correspondent)

VIENNA, Nov. 22, 1910.

A General Medical Tariff for Prague

The physicians of Prague have, after repeated efforts, succeeded in convincing all members of the local medical association of the necessity for a minimal tariff for professional services. In a memorandum addressed to the general public, the necessity of having a fixed tariff is explained by the frequent disputes between patients and doctors as to fees and by the increase of the general cost of living. The tariff divides the doctors into general practitioners, specialists and consultants. The last-named doctors are not bound to any fixed sum, but they may not go below the usual terms of specialists. The general practitioner must charge at least 2 kronen (40 cents) for a consultation in his office and 3 kronen (60 cents) for a visit in the patient's house. Night visits to be charged for at double rates of the day fee. Specialists have to charge double the rates of the ordinary doctor's fee. This is only the lower margin, as of course no upper limit can be fixed. All consultations by telephone, all written testimonials, all surgical dressings and appliances shall be charged for, the latter according to their actual cost, the former at the rate of 2 kronen each. The fee shall be due when the treatment or attendance on the patient ends. Accounts shall be sent in every quarter of the year; for fees due longer than a year, the doctor shall be entitled to ask interest at the rate of 5 per cent.

Mortality and Health of the Jewish Population in Vienna

A remarkable report by the Jewish board of health of Vienna has just now been published. It is interesting to compare its figures with those of the Gentile population. In 1909, there were 180,000 Jews among 2,100,000 of Viennese inhabitants, or a little less than 9 per cent. They have increased by 4 per cent. against 2 per cent. of the other part of the population, when the year 1908 is considered. There were 2,502 children born alive. The increase by births was 7.5 per cent. The percentage of childbirth at Vienna generally, is less than 1 per cent. The Jewish mortality was 125 per 1,000. The general Vienna mortality was 16 per cent. in 1909. A large number of deaths was due to senility; more than 20 per cent. of the deaths happened at ages over 75. It is interesting to note that only 185 Jewish infants under one year of age died in 1909, less than 9 per cent. of all deaths. Among the Jews, there is a marked freedom from alcoholism and its sequelæ; diabetes, obesity, leukemia and neurasthenia are very frequent complaints, according to hospital registers, while insanity is not more frequent than in the whole community. Taken all in all, the Jewish population in Vienna is an excellent example of the value of long-continued observations of hygienic principles; for as such, most of their religious rules regulating their living must be regarded. The special care paid by them to children, the absence of factory working by mothers, tends to propagate a healthy stock of people up to a high age.

Marriages

BOHUMUR J. DVORSKY, M.D., to Miss Rose M. Votipka, both of Chicago, November 26.

FRANK BROUWER, M.D., to Mrs. Alida Kirk, both of Toms River, N. J., November 25.

HARRISON S. THURSTON, M.D., to Miss Ella C. Shannon, both of Indianapolis, November 23.

WALTER O. GRAY, M.D., Worland, Wyo., to Miss Mary Forbes of York, Neb., November 24.

JAMES G. MARRON, M.D., Brainard, Neb., to Mrs. Frances Barnforth of Omaha, November 17.

JOEL D. WHITAKER, M.D., Raleigh, N. C., to Miss Melissa Myers of Logansport, Ind., November 22.

DAVID J. HALE, M.D., Las Cascadas, C. Z., to Miss Edith Dean of Mount Pleasant, Mich., recently.

JOSEPH C. R. DOGGETT, M.D., Crane, Mo., to Miss Erma Ethel Craig of Galena, Mo., November 20.

JOSEPH LANE FINLEY, M.D., Betterton, Md., to Mrs. Emma R. Baughman, at Baltimore, November 23.

CHARLES HENRY MCDONALD, M.D., to Miss Vesta L. Vradenburg, both of Arthur, Ill., November 17.

CLAUDE SMITH BLACK, M.D., Warren, Ind., to Miss Hallye Nelson of Greencastle, Ind., November 16.

ALBERT L. SIBOLD, M.D., McDonald's Mill, Va., to Miss Addie V. Parks, at Baltimore, November 19.

HERMAN THEODORE BECHTOLD, M.D., O'Fallon, Ill., to Mrs. Elle Merch-Bechtold of Belleville, Ill., November 17.

JOSEPH W. SHAW, M.D., Buckville, Ark., to Mrs. Susie Johnson of Lena, Ark., at Hot Springs, November 21.

GUY DAWSON RUTLEDGE, M.D., Junction, Utah, to Miss Anna Mary Fletcher of Smithshire, Ill., October 20.

RUSSELL WESLEY RAYNOR, M.D., White Haven, Md., to Miss Lola E. Wilson, at Deal's Island, Md., November 20.

LESLIE ERWIN COFFIN, M.D., Iron Mountain, Mich., to Miss Emily May Beeson of Marshalltown, Ia., October 27.

HOWARD STANLEY GORSUCH, M.D., to Miss Clara Strauff, both of Baltimore, at Wilmington, Del., November 22.

CHARLES WAITE ORVILLE BUNKER, M.D., U. S. Navy, to Miss Eleanor Garrett Caldwell, at New York City, November 12.

Deaths

Landon Brame Edwards, M.D. New York University, New York City, 1867; for many years secretary of the Medical Society of Virginia; one of the founders of the University College of Medicine; founder in 1874 and for many years editor of the *Virginia Medical Monthly*, later known as the *Virginia Medical Semi-Monthly;* died at his home in Richmond, November 27, aged 65. In 1863, Dr. Edwards enlisted in the Artillery Corps of the Confederate army and served until the close of the war, and served afterward as surgeon of the First Regiment, Virginia Volunteers. He attended his first course of medical lectures at the University of Virginia. In 1868 he moved to Lynchburg, where he remained until 1872, when he removed to Richmond. He was a member of the American Medical Association; a charter member of the Medical Society of Virginia and recording secretary since 1870; a member of the Southern Surgical and Gynecological Association; past president and honorary fellow of the Richmond Academy of Surgery; from 1872 to 1908 he was a member of the State Board of Health. His work as a teacher began in 1874, when he became lecturer on anatomy in the Medical College of Virginia; in 1875 he was elected lecturer on materia medica and therapeutics and served in this capacity for two years. In 1893 he was made professor of practice of medicine in the University College of Medicine, Richmond, and from 1900 to 1907, was professor of clinical medicine and dean of the medical faculty of the institution and later emeritus professor. His hospital experience began in 1867, when he served for five months as house physician at Charity Hospital, Blackwell's Island, and later as assistant physician to DR. M. Gonzales Echeverria, at his hospital for nervous diseases, Lake Mahopac, N. Y. In 1902 Dr. Edwards was elected an honorary member of the Medical Society of Virginia, and at the session of that body in Roanoke, in 1909, he was presented with a purse containing $1,000 as a token of the affection in which he was held by the members.

David Nathaniel Kinsman, M.D. A veteran physician and educator and public-spirited and progressive citizen of Columbus, O.; died at his home in Columbus, November 24, from heart disease, aged 76. Dr. Kinsman was graduated from the Medical College of Ohio, Cincinnati, in 1863, and since 1866 practiced in Columbus. He was a member of the American Medical Association; formerly president of the Ohio State Medical Society; a member of the American Academy of Medicine, and Columbus Academy of Medicine; a member and first president of the Columbus Medical Society in 1882. From 1872 to 1874 he was professor of diseases of women and children in Starling Medical College; professor of practice of medicine in Columbus Medical College from 1875 to 1892; professor of nervous diseases in Starling Medical College from 1892 to 1898; professor of practice of medicine in Ohio Medical University from 1898 to 1907, and thereafter emeritus professor. For many years he was chief of staff of the Protestant Hospital, Columbus. He served as health officer of Columbus from 1893 to 1897, and was a member of the Ohio Live Stock Commission from 1886 to 1900. At a meeting of the physicians of the city, November 27, presided over by Jesse A. Van Fossen, Dr. John H. J. Upham spoke in laudation of "Dr. Kinsman, the Teacher;" Dr. John M. Dunham on "Dr. Kinsman, the Advisor;" Dr. Theodore W. Rankin on "Dr. Kinsman, the Physician and Student," and Dr. John W. Wright, on "Dr. Kinsman as a Friend and Associate." Dr. Florus F. Lawrence then narrated numerous instances of sacrifices made by Dr. Kinsman for the sake of friends and patients.

Christian Archibald Herter, M.D., treasurer of the Rockefeller Institute for Medical Research, and one of the board of five referees appointed by the President of the United States to act as advisers of the Department of Agriculture in the enforcement of the national Food and Drugs Act, died at his home in New York City, December 5, aged 45. He was a native of Glenville, Conn., received his preliminary academic education in New York City, and was graduated from the College of Physicians and Surgeons in 1885. His especial work was that of an investigator and chemical pathologist. He was professor of pathologic chemistry in the University and Belleview Hospital Medical College from 1898 to 1903, and professor of pharmacology and therapeutics in the College of Physicians and Surgeons since that time. Dr. Herter was a prolific writer, his more ambitious works being those on "Diagnosis of Nervous Diseases," published in 1890, and "Lectures on Chemical Pathology," which appeared twelve years later. From 1894 to 1904, Dr. Herter was visiting physician to New York City Hospital. He was a member of the American Medical Association, New York Academy of Medicine, Association of American Physicians, American Physiological Society, American Society of Experimental Biology and Medicine, and other scientific bodies. Dr. Herter had been in ill health for more than a year, but his death was due to pneumonia.

David Lynn Magruder, M.D. University of Maryland, Baltimore, 1849; Brigadier General, Medical Corps, U. S. Army, retired; died at his home in Bryn Mawr, Pa., November 22, aged 85. He entered the Army as an assistant surgeon in 1850; was made captain five years later; in 1862 he was made major; in 1882, lieutenant colonel; in 1886, colonel; and was retired April 23, 1889, by operation of law, on account of age. He served as medical director of the Department of the Missouri at St. Louis until October, 1863, and then became chief medical purveyor at Louisville. After service as medical director of the departments of the Platte and Arizona, he again served as medical director of the Department of the Missouri, until 1884. He was brevetted lieutenant colonel in 1865 for faithful and meritorious service during the war, and was advanced to brigadier general on the retired list in 1904 on account of Civil War service.

Frederick W. Van Slyke, M.D. Minnesota Hospital Medical College, Minneapolis, 1883; a member of the American Medical Association; Minnesota Valley Medical Society, American Academy of Ophthalmology and Oto-Laryngology, and the Heidelberg (Germany) Ophthalmological Society; ophthalmologist and otologist on the staff of the City and County Hospital, St. Paul, University Free Dispensary and Protestant Orphan Asylum; died in St. Joseph's Hospital, St. Paul, November 23, from hemorrhage of the stomach, aged 53.

John D. Axline, M.D. Medical College of Ohio, Cincinnati, 1868; a member of the American Medical Association; a veteran of the Civil War, and first president of the Red, White and Blue Society, of which the Grand Army of the Republic was an outgrowth; for twenty-six years local surgeon of the Baltimore and Ohio Railroad at Shawnee, O.; for twelve years surgeon of the C. H. and S. Railroad; a member of the Seventieth General Assembly of Ohio; died at his home in Shawnee, November 19, from diabetes, aged 68.

Samuel Alexander, M.D. Bellevue Hospital Medical College, 1866; a member of the American Medical Association; New York Academy of Medicine, New York Surgical Society, and American Association of Genitourinary Surgeons; professor of diseases of the genitourinary system in Cornell University; surgeon to Bellevue Hospital, and consulting surgeon to the Montefiore Hospital; died in the New York Hospital, November 29, after an operation for appendicitis, aged 52.

James H. Gross, M.D. Medical College of Ohio, Cincinnati, 1884; a member of the American Medical Association; Association of Surgeons of the Baltimore and Ohio Railway; Big Four Railway Surgeons' Association, and National Association of United States Pension Examining Surgeons; local surgeon at Mount Vernon, Ind., for the Big Four and Baltimore and Ohio systems, and local member of the pension board; died at his home, November 21, from nephritis, aged 51.

Oliver Roland, M.D. University of Pennsylvania, Philadelphia, 1875; a member of the American Medical Association; for many years a member of the school board and board of health of Lancaster, Pa.; for twenty years physician to the Children's Home and Hospital, attending physician to St. Joseph's Hospital, and consulting physician to the Lancaster General Hospital; died at his home, November 20, from cerebral hemorrhage, aged 60.

William Robert Rees, M.D. College of Physicians and Surgeons, New York City, 1881; formerly a railway surgeon in Costa Rica, and port health officer of Port Limon; a member of the yellow fever commission for South America; since 1889 a member of the staff of the Equitable Life Assurance Company, and for several years medical director of the company; died at his home in Babylon, L. I., November 21, from cerebral hemorrhage, aged 56.

Alvah Catt Van Syckle, M.D. New York University, New York City, 1878; a member of the Medical Society of New Jersey, and vice-president of the Tri-County Medical Society; twice mayor of Hackettstown; a member of the board of education, and president of the Warren County Medical Society; died suddenly while attending a meeting of the society, November 22, from heart disease, aged 57.

Robert Quincy Gray, M.D. Washington University, St. Louis, 1907; a member of the Missouri State Medical Association; formerly a practitioner of Cabanne, Mo.; later surgeon to the Guggenheim lead mines in Mexico; died in a hotel in San Antonio, Texas, November 24, from the effects of a gunshot wound believed to have been self-inflicted with suicidal intent, aged 27.

David Sisson, M.D. Physio-Medical Institute, Cincinnati, 1876; a member of the American Medical Association; a veteran of the Civil War; for several years secretary of the Ohio Valley Medical Association; for several years health officer of Middleport, Ohio; at one time assessor of Yuma County, Colo.; died at his home, November 15, from cardiac asthma, aged 66.

William Watson, M.D. Rush Medical College, 1854; surgeon of the Eleventh Iowa Volunteer Infantry during the Civil War, and for two years surgeon-in-chief of the Military Hospital, Rock Island, Ill.; a practitioner of Dubuque, Iowa, until 1901, and thereafter of River Forest, Ill.; died at the home of his son in that place, November 21, from the effects of a fall, aged 84.

Stephen G. Cook, M.D. New York University, New York City, 1857; for twenty-five years police surgeon of New York City, and formerly president of the Board of Police Surgeons; surgeon of the One Hundred and Fiftieth New York Volunteer Infantry during the Civil War; died at his home in New York City, November 21, from senile debility, aged 79.

William H. Williams, M.D. Western Reserve University, Cleveland, 1900; for six years local surgeon of the Lake Shore System and superintendent of the board of health at Collinwood, Ohio, and mayor of that city in 1920 and until it was annexed to Cleveland; died in the Charity Hospital, Cleveland, November 17, from heart disease aged 40.

J. G. Cox, for sixty years a practitioner of medicine of Jacksonville, Ill., and Humboldt, Neb.; a veteran of the Mexican War; assistant surgeon of the One Hundred and Fiftieth Illinois Volunteer Infantry during the Civil War; died at his home in Humboldt, Neb., July 15, from senile debility, aged 87.

Frank E. McGann, M.D. Barnes Medical College, St. Louis, 1904; a member of the Illinois State Medical Society and coroner of Brown County; and formerly secretary and treasurer of the Brown County Medical Society; died at his home in Mount Sterling, November 28, from pneumonia, aged 30.

Thomas Lincoln Wells, M.D. Bellevue Hospital Medical College, 1883; a member of the Medical Society of the State of New York, and Brooklyn Neurological Society; formerly a member of the staff of the State Hospital for the Criminal Insane; died at his home in Brooklyn, October 20, aged 49.

Jesse M. Jones (license, Ind., 1897); a member of the Indiana State Medical Association; a practitioner of Indiana for forty-two years; for four years member of the Pension Examining Board of Cataract, Ind.; a veteran of the Civil War; died at his home November 1, aged 75.

Charles L. Mitchell, M.D. Jefferson Medical College, 1880; one of the founders of the Medico-Chirurgical College of Philadelphia, and for many years professor of chemistry in that institution; died in Presbyterian Hospital, Philadelphia, November 24, from heart disease, aged 58.

Linn Archibald Kelly, M.D. Bennett Medical College, Chicago, 1869; a member of the school board and city physician of Winona, Minn; a member of the local board of U. S. pension examiners; died at his home, November 24, from septicemia due to an operation wound, aged 65.

George Henry Plitt, M.D. State University of Iowa, Iowa City, 1895; a member of the Kentucky State Medical Association; representative from Hancock County in the state legislature; was found dead in his home at Lewisport, November 22, from heart disease, aged 39.

Robert C. Tuttle, M.D. Albany (N. Y.) Medical College, 1863; assistant surgeon in the U. S. Navy from 1862 to 1866; formerly of Rockland, N. Y., but for ten years past associated with his son at Roscoe, N. Y.; died at his home, November 10, from angina pectoris, aged 76.

Albert Berry Clanton, M.D. Jefferson Medical College, 1852; of Hattiesburg, Miss.; a lieutenant in the Mexican War, and a surgeon in the Confederate service during the Civil War; died at the home of his daughter in St. Louis, February 17, from pneumonia, aged 81.

George R. Millhouse, M.D. Columbus (Ohio) Medical College, 1878; a veteran of the Civil War; formerly of Allentown and Elida, Ohio, but for some time past a resident of Lima; died at the home of a niece in Piqua, Ohio, October 22, from heart disease, aged 70.

John Henry Shenk, M.D. University of Pennsylvania, 1861; a member of the Medical Society of the State of Pennsylvania; formerly school director and a member of the Lititz city council; died at his home, November 23, from uremia, aged 71.

John W. Cringan, M.D. University College of Medicine, Richmond, Va., 1901; of Arrington, Va.; a member of the American Medical Association; died on a Chesapeake and Ohio train at Ashcake, Va., November 22, from heart disease, aged 33.

John Thaddeus Carter, M.D. Cleveland University of Medicine and Surgery, 1890; professor of chemistry, toxicology, analysis, and physiology in Cleveland Medical College; died at his home in Cleveland, November 19, from nephritis, aged 48.

Harry S. Ford, M.D. McGill University, Montreal, 1904; of Vancouver, B. C.; died about November 10, from exposure, while lost in a forest near Jervis Inlet, 130 miles north of Vancouver, where he had been on a hunting trip, aged 30.

George Anthony Byrn, M.D. Rush Medical College, 1855; assistant surgeon of the One Hundred and Nineteenth Illinois Volunteer Infantry during the Civil War; died at his home in Clayton, Ill., October 25, from senile debility, aged 81.

Daniel O'Callaghan, M.D. Trinity College, Dublin, Ireland, 1871; Jefferson Medical College, 1882; for ten years a practitioner of London, and later of Kensington, Philadelphia; died at his home, November 13, from pneumonia, aged 71.

Herbert Charles Switzer, M.D. Detroit College of Medicine, 1902; a member of the American Medical Association; formerly of Gaines, Mich.; died at his home in Highland Park, Detroit, November 28, from pneumonia, aged 36.

James Hugh Biedsoe, M.D. Jefferson Medical College, 1891; formerly vice-president of the Marshall County (Tenn.) Medical Society; died at his home in Yokely, near Lynnville, Tenn., November 17, from pneumonia, aged 41.

James Pollock McCleery, M.D. Jefferson Medical College, 1857; surgeon of the Fifty-Sixth Pennsylvania Volunteer Infantry during the Civil War; died at his home in Milton, Pa., November 25, from paralysis, aged 78.

Robert Wallace Jakes, M.D. McGill University, Montreal, 1893; died at his home in San Francisco, November 20, from the effects of cyanid of potassium, believed to have been self-administered with suicidal intent, aged 40.

Sidney C. Burgess, M.D. University of Arkansas, Little Rock, 1886; president of the Polk County (Ark.) Board of Health; local surgeon at Russellville for the Missouri Pacific System; died at his home, November 12, aged 51.

William C. P. Butman, M.D. Albany (N. Y.) Medical College, 1854; assistant surgeon of the Third Missouri Volunteer Infantry throughout the Civil War; died at his home in Macon, Mo., November 12, aged 83.

Howard C. Brown, University College of Medicine, Richmond, Va., 1899; of Blythedale, Md.; while waiting for a train at Newark, Del., November 24, was struck by a train and instantly killed, aged 35.

William L. Miller, M.D. George Washington University, Washington, D. C., 1883; a member of the Medical Association of the District of Columbia; died at his home in Washington, November 20, aged 51.

Edmund D. Burwell, M.D. Louisville Medical College, 1875; a member of the Medical Association of the State of Alabama; died at his home in Huntsville, November 6, from intestinal miliary tuberculosis, aged 62.

Elam Bahr Mauger, M.D. Jefferson Medical College, 1875; a member of the Medical Society of the State of Pennsylvania; died at his home in Pottstown, November 20, from angina pectoris, aged 57.

John H. O'Bar, M.D. St. Louis College of Physicians and Surgeons, 1908; professor of fractures and dislocations in his alma mater; died in the O'Bar Sanitarium, St. Louis, November 22, from pneumonia, aged 39.

Leonard M. Mingoe, M.D. Chicago Homeopathic Medical College, 1878; of Towanda, Pa.; died at his country home in Danville, N. J., November 3, from injuries received in a runaway accident, aged 56.

Homer L. Rochelle, M.D. Western Eclectic College of Medicine and Surgery, Kansas City, Kan., 1908; of Kansas City; died in Hot Springs, Ark., November 23, from nephritis, aged 48.

Martin Luther Corbin, M.D. Kentucky School of Medicine, Louisville, 1892; a member of the American Medical Association; died at his home in Ellenboro, W. Va., October 23, aged 57.

Emmett Willis Price, M.D. University of Michigan, Ann Arbor, 1865; a member of the Ohio State Medical Association; died at his home in Kent, November 22, from uremia, aged 66.

John A. Washington, M.D. Vanderbilt University, Nashville, 1879; University of Nashville, 1880; of Murfreesboro, Tenn.; was thrown from a buggy, November 12, and instantly killed.

Placido Ferretti, M.D. College of Physicians and Surgeons, Boston, 1906; was found dead at his home in Worcester, November 16, from accidental poisoning by chloroform.

M. G. Parker, M.D. Rush Medical College, 1852; a member of the Indiana legislature in 1891; died at his home in Danville, November 12, from senile debility, aged 91.

George F. Marsden, M.D. Hahnemann Medical College, Philadelphia, 1866; died at his home in Red Bank, N. J., November 23, from disease of the stomach, aged 64.

John W. Webb, M.D. Jefferson Medical College, 1866; died at his home in Island Heights, N. J., November 13, aged 81.

Andrew M. Brown (license, Ga., 1898); died at his home in Jesup, November 3, after a surgical operation, aged 42.

Association News

HOW TO GO TO LOS ANGELES

The Railroad Routes to the Next Annual Session of the American Medical Association

The question of how to go to Los Angeles next June to the session of the American Medical Association is one which is interesting many members of the Association at this time. As is well known, there are three prominent routes to the far West: the southern route through Arizona, New Mexico, etc., taking in the Grand Canon; the central route through Colorado, the beautiful mountain scenery of the Rio Grande, etc., and the northern route, taking in Yellowstone Park and the magnificent Shasta trip along the mountain range of the Pacific slope.

The Committee on Transportation is now making arrangements for special trains for the use of members and their families who expect to attend the session. The committee is in touch with all the principal railroads and can make arrangements for special trains or cars as may be necessary from almost any point in the United States.

The chairman of the committee earnestly requests all those who expect to attend the session, particularly those living in the middle and eastern states, to communicate with him as soon as possible as to the route, southern, central, or northern, they desire to take west from Chicago. In this way, ample and satisfactory accommodations can be arranged for all. If any group of members from any city or territory will express their wishes to the committee, every effort will be made to secure special cars or train as may be necessary for their accommodation over the best route possible.

Applications for reservations on the special trains or on regular trains from Chicago west may now be filed with the Chairman of the Committee on Transportation, who will see that they are all properly taken care of.

M. L. Harris, Chairman,
Committee on Transportation.
100 State Street, Chicago.

Pharmacology

A FRAUDULENT DRUG-HABIT "CURE"

Dr. J. W. Coblentz and His Compound Oxygen Association

Dr. J. W. Coblentz, of Ft. Wayne, Ind., has for years operated a mail-order drug habit "cure." In the early nineties Coblentz—who admits that he has been addicted to the alcohol and morphin habits—advertised extensively to cure persons addicted to the morphin habit. Of late years he has not advertised, but has relied on circular letters for what business he could get.

When the government commenced investigating the Compound Oxygen Association, one of the post-office inspectors wrote, under an assumed name, representing himself as a man 50 years old who had been addicted to the morphin habit for about six years, and who was using about 15 grains daily. Coblentz replied that he could be cured in four treatments, and that the cost of treatment would be $11. Advertising leaflets were also sent to this inspector in which it was stated that Coblentz' treatment was a "permanent and positive cure

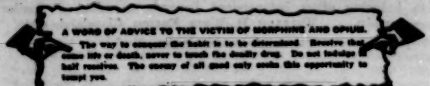

A WORD OF ADVICE TO THE VICTIM OF MORPHINE AND OPIUM.
The way to conquer the habit is to be determined. Receive this
come life or death, never to touch the deadly drug. Do not indulge in
half measures. The coward of all fiend only seeks this opportunity to
tempt you.

Fig. 1.—A photographic reproduction (reduced) of a paragraph in one of Coblentz' pamphlets. What can be thought of a man who urges the victims of the morphin habit "never to touch the deadly drug," while at the same time he is supplying "treatments" which were loaded with morphin?

for the morphin habit." By implication the patient was led to believe that the "treatment" contained no morphin. For instance:

"Do not take every cure you see advertised, for how easy it is to disguise the drug under the garb of a new cure and beguile the poor, unsuspecting victim into the belief of being cured while all the time he is taking the drug under a different name."

"The cure is simple and harmless."

"I do not send out trial bottles. This is the method pursued by the medical shark. Half the time you receive your old drug (from whose clutches you are trying to escape) with the taste disguised."

"I can truthfully say I can and will cure you if you will put your case in my hands."

The inspector sent $11 to Dr. Coblentz and received seven packages of medicines, which were analyzed by chemists in the Department of Agriculture.

No. 1.—A 16-ounce bottle of brown liquid, containing vegetable extractives, alcohol, water and morphin.

No. 2.—A 16-ounce bottle of brown liquid, having essentially the same composition as No. 1, except that there was some quinin salt in addition.

No. 3.—An 8-ounce bottle of liquid similar to that in Nos. 1 and 2, but with a smaller percentage of morphin.

No. 4.—A stomachic preparation, composed of water, alcohol, capsicum and morphin derivatives.

No. 5.—"Nervine Tablets;" chocolate-coated tablets of iron and quinin.

No. 6.—"Stomach Tablets;" sugar-coated tablets containing sodium bicarbonate, capsicum and strychnin.

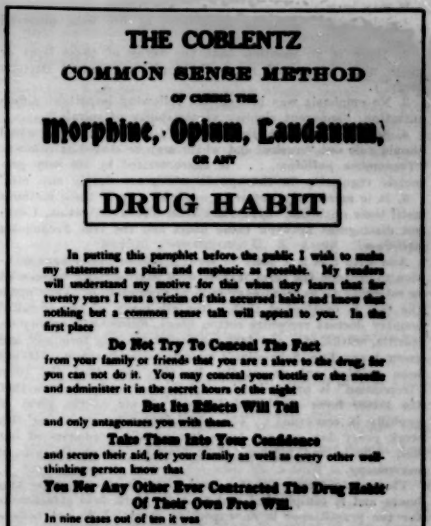
No. 7.—"For the Bowels:" sugar-coated, laxative tablets containing aloes, cascara, ginger and licorice.

It was shown at the trial that the twenty-four-hour dose of the "treatment" sent by Dr. Coblentz to the person who was supposed to be using 15 grains of morphin daily, contained 20 grains of morphin!

The post-office inspector testified that he had interviewed Dr. Coblentz, and that Coblentz had told him that he was "treating" about twenty-five patients for the morphin habit, and that these patients had been under "treatment" for from five to twenty years! Coblentz also admitted that the medicine which he sold to patients for the cure of the morphin habit contained morphin in about the same amount as the patient was accustomed to using, and that this quantity was continued throughout. Coblentz is said further to have admitted that he had never really cured the appetite of anyone addicted to the morphin habit, but that the patients reached the point where he called them cured, but they had to keep up the use of the medicines. Correspondence was submitted at the trial which showed that one of Coblentz' patients had been taking the "cure" for fifteen years and was still taking it!

In view of all the evidence, the acting assistant attorney general summed up the case against Coblentz as follows:

"The respondent is engaged in mailing letters and printed circulars to morphin habitués, and is soliciting and obtaining money from such persons by promising to cure them of that habit—that is to say, of the taste, desire and appetite for



THE COBLENTZ

COMMON SENSE METHOD

OF CURING THE

Morphine, Opium, Laudanum,

OR ANY

DRUG HABIT

In putting this pamphlet before the public I wish to make my statements as plain and emphatic as possible. My readers will understand my motive for this when they learn that for twenty years I was a victim of this accursed habit and know that nothing but a common sense talk will appeal to you. In the first place

Do Not Try To Conceal The Fact

from your family or friends that you are a slave to the drug, for you can not do it. You may conceal your bottle or the needle and administer it in the secret hours of the night

But Its Effects Will Tell

and only antagonizes you with them.

Take Them Into Your Confidence

and secure their aid, for your family as well as every other well-thinking person know that

You Nor Any Other Ever Contracted The Drug Habit Of Their Own Free Will.

In nine cases out of ten it was

Brought On By The Family Physician

who in case of a accident or long siege of sickness

Administered It To Relieve Pain

Fig. 2.—Photographic reproduction (reduced) of the first page of one of Coblentz' pamphlets. "The Coblentz Common Sense Method of Curing the Morphin . . . Habit" consisted in substituting a morphin mixture for the simple drug, thus creating a permanent customer for the "treatment!"

morphin, whereas, in truth, he does not intend to cure or try to cure such habit, but instead intends to furnish patients with a preparation containing substantially the same amount of morphin as they are accustomed to take, his purpose being to deceive such persons and to profit by their appetite for morphin and to get money out of them under false and fraudulent pretenses of furnishing them a cure for the habit, when he is simply furnishing the drug itself and not a cure.

"On full consideration of the case, I find that Dr. J. W. Coblentz, under his own name and under the name of the Compound Oxygen Association, Fort Wayne, Ind., is engaged in carrying on a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises. I recommend, therefore, that a fraud order be issued against him and said Association."

The order was issued.

Correspondence

Foreign Matter vs. the Treponema in Ink Methods

To the Editor:—In THE JOURNAL (Nov. 26, 1910, p. 1892), Dr. J. H. Barach gives an interesting criticism of the American India inks with special reference to foreign matter which may be present. His observations are good, especially as regards the "dried" preparations. I desire to add that these inks are not usually sterile, but often contain many microorganisms. Some of these methods, however, especially those in which the "wet" technic has been adopted, have been serving, exceedingly well, men who have found an office diagnosis necessary in many suspected cases of lues (*Arch. Diagnosis*, January, 1910). Can it be possible that this one communication must drive us back to the more tedious methods? Has any person claimed that these inks are free from extraneous material and their use without objection?

It may be well to note the following points:

1. No motions or other indications of life were observed in the "wavy fibers."

2. There is no mention that the turns of these lines or fibers were "close and regular" (Jordan's "General Bacteriology").

3. No emphasis was laid on the following important differentiation: "apparent rigidity vs. flexibility of spirals."

4. Stitt ("Practical Bacteriology") offers a test which should rule out "cracks" and which may be stated as follows: "*Treponema pallidum*, . . . is characterized by its very geometric regularity in the spirals which are deeply cut, etc."

5. It is manifestly unfair to condemn any of these methods until their critic can say, "After a careful investigation, I cannot distinguish between these fibers and the true *Treponema pallidum*."

And with this last point in view, I believe that I have occasion to criticize the term "experienced microscopist" when used in reference to any ordinary clinical examination. Very often the fact is overlooked that, after all, many of our so-called country doctors recognize cotton fibers, *Spirochaeta refringens*, spirilla, cracks, etc., and dare not conscientiously term any and every wavy line, Schaudinn's specific microorganism. (It has been pointed out repeatedly, by the way, that the term "treponema" is preferable to "spirochete," and I believe that the latter term should be dropped, so far as the germ of syphilis is concerned.) The physicians who are doing this work every day are not tyros but usually graduates of our best schools and received their training during the era of microscopy.

Please to remember that a good Giemsa's stain requires two hours and is complicated and that the dark field attachment for the practitioner is an expensive asset. I do not believe that the article in question was intended to condemn the American inks, though it might be so interpreted by the man who has not yet observed their good points. There is a tendency in medicine, however, to belittle anything which will make laboratory work possible to the man outside the college or hospital and an attempt—unconscious often, I believe—to convince him that he is not capable of recognizing so simple a thing as the urinary cast. What is the result? Such examinations are left undone.

Far be it from me to hold up any of the ink methods as model procedures. Beauty is lacking. The preparations do not in every portion show spirochetes. Many bacteria are present in the ink and I believe that special inks should be made up for these examinations (let some chemical or optical company take up the suggestion). I have also observed many fibers and cracks. But I have yet to find the *Treponema pallidum* in a bottle of Higgins' ink and I doubt if it occurs in others. Surely, if it does, the war against the public drinking-cup should be waged against another dangerous carrier of the modern black plague. These difficulties may be overlooked when we are considering diagnosis.

Although I prefer to make these examinations from suspensions in warm, physiologic salt solution, I see no objection to studying these preparations after they have dried. It should be remembered, however, that desiccation causes often, though not always, a loss of characteristic windings.

In conclusion, permit me to say that the physician who has mastered his laboratory courses in microscopy may depend on the ink methods—he may still search for casts even though a few cotton fibers from his towel have fallen on his slide.

B. G. R. WILLIAMS, M.D., Paris, Ill.

Another Clean Medical Journal

To the Editor:—An editorial in THE JOURNAL, Aug. 20, 1910, p. 697, discusses the action of the *Gulf States Journal of Medicine and Surgery* in eliminating from its pages advertisements of such medicinal preparations as do not comply with the requirements of the Council on Pharmacy and Chemistry of the American Medical Association.

May I call your attention to the fact that the *Cleveland Medical Journal* in November, 1909, announced a similar program and since then this rule has been observed in accepting new advertisements? Existing contracts, of course, had to be observed, and although practically all of the objectionable advertisements appeared for the last time in the issue of December, 1909, it was not until August, 1910, that the last one had disappeared.

Publicity of such facts as the above should certainly help in inducing other independent journals to adopt a similar censorship. WILLIAM H. WEIR, Editor, Cleveland, Ohio.

[See Current Comment in this issue.—Ed.]

Request for Specimens

To the Editor:—May I ask through your columns for a few specimens? I need particularly a specimen of a tuberculous spine, a tuberculous sternoclavicular articulation and a tuberculous sacro-iliac articulation. If any of your readers, on removing one of these at autopay will place it in a 2 per cent. dilution of liquor formaldehyde and will send it to me, I shall be glad to pay expressage, and shall be very grateful to him. LEONARD W. ELY, Metropolitan Bldg., Denver.

Coblentz Not With Medical Research Corporation

To the Editor:—In one of the summer numbers of THE JOURNAL (Aug. 6, 1910, p. 519), there appeared an article relative to the "Medical Research Corporation" ["International Encyclopedia of Ethical Non-Official Pharmaceuticals"] with which I was at that time connected as editor-in-chief. I call attention to the fact that I have severed my connection with this corporation. V. COBLENTZ, New York City.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FINAL RESULTS IN VARICOSE ULCERS OF THE LEG

To the Editor:—Please inform me what have been the final results in varicose ulcers of the leg on which an operation was performed by excision of veins and otherwise, and if a support like an elastic stocking must be worn afterward. NAOLOC.

ANSWER.—The final results of the treatment of varicose ulcers of the leg in which an operation such as excision of veins or otherwise has been performed depend largely on the nature of the operation done. The ulcers are so intimately dependent on the varicose veins that the end-results of the treatment of the latter represent equally well the end-results of the treatment of the former.

Perhaps the operation most frequently performed at the present time is the modified Trendelenburg operation, which consists in the excision of from 8 to 10 cm. of the internal saphenous vein just below the saphenous opening. This operation gives on an average about 50 per cent. of objective cures and 75 per cent. of subjective cures in cases followed from five to ten years. The longer the elapsed time after the operation the greater the percentage of recurrences.

The Schede operation, which consists of a circular incision around the leg just below the knee with the ligation and section of all the veins encountered, gives permanent good results in about 30 to 35 per cent. of the cases.

Madelung's operation, or some modification of it, which consists in the more or less complete excision of the internal saphenous system of veins, is the most extensive operation and the least likely to be followed by a recurrence, but it is unnecessarily severe in a large percentage of the cases.

Cases of varicose veins of the leg may be divided into three classes:

1. Those in which the enlarged veins are all tributary to the internal saphenous and in which pressure on the internal saphenous, after depleting the veins, prevents their refilling when the patient resumes the erect position.

2. Those in which the enlarged veins communicate with the short or posterior saphenous in addition to the internal saphenous, and therefore pressure on the internal saphenous alone does not prevent the refilling of the veins.

3. Those in which, in addition to the conditions found in Classes 1 and 2, there are communications between the superficial and deep set of veins by means of large sinuses, usually on the calf and inner surface of the leg, with the formation of large "knots" of veins in this region, and the veins refill even when pressure is made on both the internal and short saphenous veins.

In Class 1 Trendelenburg's operation is usually sufficient; in Class 2 Trendelenburg's operation combined with excision of a section of the posterior saphenous. In Class 3 there must also be added excision of the "knots" of veins with ligation and section of the communicating sinuses between the superficial and deep set of veins.

If the cases be thus differentiated and the proper operation selected for each case, permanent results may be expected in from 90 to 95 per cent. Of course, ulcers when present should receive proper treatment. If they are large it is best to excise them completely and cover the surface with a Thiersch graft. It is unnecessary to wear an elastic stocking after recovery, but the bandage should not be removed too soon after the patient gets up and around.

TORTICOLLIS

To the Editor:—Please give me references to articles on the subject of torticollis which have appeared during the past few years.
R. M. SCHLEY, Buffalo, N. Y.

ANSWER.—The following are some of the articles which have appeared on the subject within the past two years:

Böhm, M.: Etiology of Congenital Torticollis, *Berl. klin. Wchnschr.*, Aug. 9, 1909; abstr. in THE JOURNAL, Sept. 18, 1909, p. 981.

Broca, A.: Torticollis from Inflammatory Retraction of the Sternocleidomastoid Muscle, *Presse med.*, Sept. 12, 1908.

Kennedy, R.: Section of the Posterior Primary Divisions of the Upper Cervical Nerves in Spasmodic Torticollis, *Brit. Med. Jour.*, Oct. 3, 1908.

Lister, T. E.: Spasmodic Torticollis Following Chorea, *Lancet*, July 24, 1909.

Newlin, A.: A Case of Torticollis, Probably Congenital, *Internat. Clin.*, 1907, series 17, iv, 255.

Petera, A.: Asymmetry of Face and Skull in Relation to Torticollis, *München. med. Wchnschr.*, Aug. 25, 1908.

Rowlands, R. P.: Treatment of Wry-Neck by Lengthening the Sternomastoid, *Practitioner*, September, 1908; abstr. in THE JOURNAL, Oct. 3, 1908, p. 1190.

Weinstein, J.: Torticollis After Removal of Adenoid Vegetations, *Med. Abs.*, May 9, 1909.

Williams, T. A.: Facial Spasm and Tic; Torticollis and Treatment, *Month. Cycl. and Med. Bull.*, January, 1910.

SEROTHERAPY OF TYPHOID FEVER

To the Editor:—Where can I secure bacterial cultures or serums or antityphoid serum and literature on treatment with the serum?
F. P. DOBSNY, Hartington, Neb.

ANSWER.—The bacterial cultures and antityphoid serum are described in New and Nonofficial Remedies and the names of manufacturers are there given. There is little recent literature with reference to the use of the serums. The following, dealing with antityphoid vaccination, may be referred to:

Chantemesse, A., and Landouzy: Discussion of Antityphoid Vaccination, *Bull. de l'Acad. de méd.*, Feb. 8, 1910; referred to in the Paris letter in THE JOURNAL, March 5, 1910, p. 804.

Russell, F. F.: Antityphoid Vaccination, the Immediate Result of the Administration of 3,600 Doses, *Bull. Johns Hopkins Hosp.*, March, 1910; abstr. in THE JOURNAL, April 16, 1910, p. 1337.

Eckelman, M. M.: Vaccination Prophylaxis in Typhoid, *Jour. Indiana Med. Assn.*, April, 1910.

Hartsock, F. M.: Antityphoid Vaccination, Result of 1,100 Inoculations, THE JOURNAL, June 25, 1910, p. 2123.

Gosman, G. H. R.: The Present Status of Typhoid Inoculation, THE JOURNAL, Oct. 1, 1910, p. 1169.

STAINING SMEARS OF SPIROCHÆTA PALLIDA

To the Editor:—Please describe an effective way to make the smears and stain the *Spirochæta pallida* to be used by the general practitioner.
C. A. MANAHAN, Center Point, Iowa.

ANSWER.—The chancre or a skin lesion is cleansed with soap and water, lightly curetted, the blood wiped off, and a thin smear made from the exuded serum. Enlarged glands may be examined by aspirating a drop of serum from them with a hypodermic syringe. The smear is fixed by drying in the air and then placing for an hour in absolute alcohol and stained for twenty-four hours in diluted Giemsa mixture of 1 drop of Giemsa stain to 1 c.c. of the distilled water. The organism stains a delicate violet-purple color, while the nuclei of the leukocytes are of a deep blackish red. The latter appearance shows that the specimen has been sufficiently stained. The organisms are most numerous in moist papules and chancres (when the curettage is carried out at the edge of the lesion). In scrapings from roseolæ the search is frequently disappointing. The organism should be distinguished from *Spirochæta refringens*, *Spirochæta dentium*, etc.

SODIUM CITRATE IN FURUNCULOSIS

Since publishing the query of J. L. L. in the issue of Nov. 26, 1910, p. 1911, in regard to Wright's method of using sodium citrate in furunculosis, we have received a number of letters giving references to this method. Nearly all refer to Crandon's work on "Surgical After-Treatment," which explains Wright's method, or to an article by Crandon in the *Annals of Surgery*, October, 1910, abstracted in THE JOURNAL, Nov. 5, 1910, p. 1685, which also explains the Wright method of using sodium citrate solution in furunculosis, which we omitted in our former answer to the query.

The Public Service

Medical Department, U. S. Army

Changes for the week ended Dec. 3, 1910.

Brown, Wilmont E., M.R.C., November 21, relieved from duty at Army General Hospital, Fort Bayard, N. Mex., and ordered to proceed to his home. Lieutenant Brown will stand relieved from further active duty in the Medical Reserve Corps, to take effect on his arrival at his home.

Weed, Frank W., captain, November 26, granted one month's leave of absence, to take effect about Dec. 15, 1910.

Haverkampf, C. W., lieutenant, November 22, reports departure on ten days' leave of absence.

Wolven, F. Homer, D. S., November 21, reported at Fort Casey, Wash., for temporary duty.

Leslie, Samuel H., D. S., November 25, left Fort Robinson, Neb., en route to Fort McKenzie, Wyo., for temporary duty.

Usher, F. M. C., major, November 26, granted fourteen days' leave of absence.

Stone, John H., major, November 23, granted four months' leave of absence with permission to go beyond the sea.

Eber, Albert L., M.R.C., November 15, ordered to proceed from Fort Moultrie, S. C., to Fort Dade, Fla., for temporary duty, during the absence of First Lieut. John H. Hereford, M.R.C.

Jenkins, Frederick E., M.R.C., November 17, will report for duty with Co. I, Signal Corps, en route to Fort D. A. Russell, Wyo., on the completion of this duty to return to station at Fort Leavenworth, Kan.

Mason, George L., D. S., November 16, reported for duty (temporary) at Fort Yellowstone, Wyo.

Scott, H. O., D. S., November 26, reported for duty at Fort Hamilton, N. Y.

Dougherty, James C., M.R.C., November 27, reported for temporary duty at Fort Huachuca, Ariz.; left Fort Bliss, Texas, November 25, 1910.

Miller, E. W., captain, November 28, granted leave of absence to and including Dec. 25, 1910.

Brown, H. L., captain, November 28, left Fort Morgan, Ala., on ten days' leave of absence.

Candy, Charles M., lieut.-col., December 1, in addition to his duties as chief surgeon, Department of California, will assume the duties of medical superintendent, Army Transport Service, San Francisco, relieving Lieut.-Col. Henry S. T. Harris, Medical Corps.

Medical Corps, U. S. Navy

Changes for the week ended Dec. 3, 1910.

Hibbett, C. T., medical director, commissioned medical director from Oct. 7, 1910.

Stone, E. P., medical inspector, commissioned medical inspector from Aug. 24, 1910.

Pickrell, G., medical inspector, commissioned medical inspector from Oct. 7, 1910.

Trible, G. B., P. A. surgeon, commissioned passed assistant-surgeon from June 27, 1910.

Hale, G. D., and Bunker, C. W. O., P. A. surgeons, commissioned passed assistant-suregons from Sept. 21, 1910.

Higgins, M. E., P. A. surgeon, commissioned passed assistant-surgeon from Oct. 4, 1910.

Stanley, A. C., asst.-surg., transferred to the retired list from Nov. 23, 1910.

Ely, C. F., P. A. surgeon, detached from the *Wilmington* and ordered home.
Minter, J. M., asst.-surg., detached from the *Monterey* and ordered to the *Wilmington*.
Bloedorn, W. A., asst.-surg., detached from the naval hospital, Canacao, P. I., and ordered to the *Monterey*.
Allen, D. G., asst.-surg., detached from the naval hospital, Canacao, P. I., and ordered to the *Iloeno*.

U. S. Public Health and Marine-Hospital Service

Changes for the seven days ended Nov. 30, 1910.

White, J. H., surgeon, leave of absence granted for ten days from Nov. 11, 1910, amended to read eight days from November 13.
McIntosh, W. P., surgeon, leave of absence granted Oct. 22, 1910, amended to read seventeen days from Nov. 11, 1910.
Grubbs, S. B., P. A. surgeon, granted seven days' leave of absence from Nov. 28, 1910, on account of sickness.
Anderson, J. F., P. A. surgeon, directed to inspect the Saranac Laboratory for the Study of Tuberculosis, Saranac Lake, N. Y.
Bahrenburg, L. P. H., P. A. surgeon, granted eleven days' leave of absence from Nov. 10, 1910, on account of sickness.
Frost, W. H., P. A. surgeon, directed to rejoin station at Washington, D. C., stopping at Des Moines, Iowa, for conference with secretary of state board of health.
Hotchkiss, S. C., asst.-surgeon, relieved from duty on the Revenue Cutter *Bear* and directed to report to the director of the Hygienic Laboratory.
Atiles, P. del Valle, A. A. surgeon, granted thirty days' leave of absence from Dec. 1, 1910.
Gustetter, A. L., A. A. surgeon, granted fifteen days' leave of absence from Dec. 9, 1910.
Tarbell, B. C., A. A. surgeon, granted thirty days' leave of absence from Dec. 1, 1910.
Board of medical officers convened to meet at Angel Island, Cal., for reexamining an alien. Detail for board: P. A. Surgeon F. E. Trotter, chairman; P. A. Surgeon N. W. Glover; Assistant Surgeon A. J. Lanza, recorder.

Medical Economics

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Fifth Month—First Weekly Meeting

General Subject for the Month: Diseases of the Skin

ANATOMY OF THE SKIN

EPIDERMIS: Stratum corneum, stratum lucidum, stratum granulosum, rete malpighii.
CORIUM: Pars papillaris, pars reticularis.
SUBCUTANEOUS LAYER: Blood-vessels. Lymphatics. Nerves. Muscles. Glands. Appendages.

PHYSIOLOGY OF THE SKIN

Protective function. Heat regulation, tactile and pain sensations, respiratory and secretory functions, elimination.

GENERAL SYMPTOMATOLOGY

SUBJECTIVE SYMPTOMS: Itching, burning, tingling, pain, tenderness, etc.
OBJECTIVE SYMPTOMS: Primary lesions: Macules, papules, vesicles, blebs, pustules, wheals, tubercles, tumors.
Secondary lesions. Scales, crusts, excoriations, fissures, ulcers, scars, pigmentations.

TREATMENT IN GENERAL

HYGIENE: Diet.
MEDICINAL TREATMENT: General tonics, aperients, gastro-intestinal antiseptics, diuretics, alteratives, animal extracts, germicides, antipruritics, vasoconstrictors.
LOCAL TREATMENT: Baths, soap, dusting-powders, lotions, ointments, pastes, oils, fixed dressings. Antipruritics, parasiticides, caustics. Mechanical measures.

REFERENCE BOOKS FOR THE FIFTH MONTH

Works on "Diseases of the Skin," by Stelwagon, Hyde, Shoemaker and Crocker.
Pusey: Principles and Practice of Dermatology.
Kaposi: Pathology and Treatment of Diseases of the Skin.
Morrow: Genitourinary Diseases, Syphilology and Dermatology.
Fox: Diseases of the Skin (Photographic Atlas).

Miscellany

Tuberculosis in the Philippine Islands.—It is the opinion held by most persons who have not lived in the tropics that tuberculosis is less prevalent there than in the temperate zones. This, however, according to Dr. Isaac W. Brewer (*Journal of the Outdoor Life*, September, 1910) is not true of the Philippines. Brewer states that the deaths in those islands from tuberculosis outside of Manila in 1907 was 210 per hundred thousand as against 172 in the registration area of the United States, for instance, and that the death-rate from this cause in Manila during 1908 was 486 per hundred thousand as against 89 for the city of St. Paul, Minn. He says that if there is any virtue in sunshine and fresh air there should be but little tuberculosis in those islands, as the climate is rarely so severe even in the rainy season as to compel the inhabitants to keep their houses closed. The habits of the Filipino, however, are such that fresh air is usually lacking in his residence. The rarity of tuberculosis among cattle in the Philippines indicates that the climate itself cannot be responsible for this disease among the natives. Dr. Brewer's study shows that the same causes are operative as apply elsewhere—bad hygienic surroundings, poor food, and improper clothing. The houses of even the better classes are lacking in ventilation and are kept religiously closed during the day to exclude the heat and also at night because of the belief that the night air will cause fever. An actual count of 200 houses in Manila at midnight showed that less than 25 per cent. had the street windows open, and in many there were no windows in the bedrooms. It is not uncommon to find horses and other animals kept in the lower floors of the best houses in Manila. The poorer natives in both the cities and the provinces live in thatched cottages which seem to be well ventilated, but on closer examination it is found that the windows are closed during the greater part of the day and all night; the space beneath the houses is occupied by hogs, goats, and cattle, and beneath the kitchen will be a filthy hog-wallow into which is thrown the refuse from the house. The Filipino is a great chewer and spitter and he expectorates wherever most convenient. There is also a habit of exchanging partially smoked cigarettes and cigars which undoubtedly is a means of conveying the infection of tuberculosis. In addition, over 90 per cent. of the natives are the hosts of intestinal parasites, which, while they may cause no special symptoms in themselves, predispose their host to other infections, particularly tuberculosis. The average native is poorly nourished, living mostly on rice and fish, with occasionally pork and rarely beef, together with a few roots, fruits and green vegetables. The clothing is mostly cotton, which in the rainy season remains damp; shivering natives are a common sight. Except in the larger towns there is a great lack of medical attention, and indeed few towns could support a physician. Brewer believes that the inhabitants would readily avail themselves of hospitals or dispensaries and that much good could be accomplished by the American government by the establishment of such institutions in the small country towns. He thinks that an enthusiastic physician with a few good trained nurses and a supply of drugs could accomplish wonders. An active campaign of education must be instituted, but the methods adopted must be different from those adopted in other countries because the people are not so far advanced in their knowledge of hygiene.

Influenzal Meningitis.—Influenzal meningitis is a rare disease, chiefly restricted to young children, and having a mortality of 90 per cent. About 40 cases have been reported in the literature but it is probably more common than these reports indicate. David J. Davis (*Tr. Chicago Path. Soc.*, June, 1910) reports seven cases of influenzal meningitis which were recognized in Chicago in a little over a year, all resulting fatally, and in duration varying from three to fourteen days. All the patients were infants, the oldest being 13 months and the youngest five days. A definite history of "cold" preceding the meningeal trouble was obtained in four cases. Temperature as a rule was variable and ranged from 100 to 105 F. or higher. Petechial hemorrhages in the skin occurred in one

case and herpes labialis in one. Eye symptoms as a rule were present and also marked retraction of the head and rigidity of the back and limbs. Lumbar puncture was made in four cases, and in all turbid fluid under pressure was obtained, which contained many leukocytes, the polynuclear cells predominating (usually about 80 per cent.). Five of the cases were examined post-mortem. An abundant highly purulent greenish yellow friable leptomeningeal exudate was present in four; in the remaining case, in which the patient died on the third day, the exudate was scant and not characteristic. As a rule the exudate was very abundant at the base and over the frontal lobes. In one case there was an extensive hemorrhagic serofibrinous exudate lining the dura, and in one case a large cerebral abscess occurred in the right hemisphere, and extensive acute softening occurred in the cortex of the opposite hemisphere. Internal hydrocephalus existed in this case also. Acute bronchitis was present in four and bronchopneumonia in three cases. Acute rhinitis was found in three, one showing extensive necrosis of the entire nasal mucosa involving the cribriform plate. Bilateral otitis media occurred once and acute gastro-enteritis once. In all cases acute degeneration of the various organs was evident. The influenza bacillus was isolated in practically pure culture from the meningeal exudate and cerebrospinal fluid in all cases. In two it was found pure in the heart's blood; in one in the peritoneal fluid, and in one in the pericardial fluid. In three cases it occurred mixed with streptococci in the bronchial secretion, and once it was grown from the surface of the nasal mucosa. The atrium of infection in four cases was in all probability the upper respiratory passages, in two of which the infection undoubtedly penetrated the cribriform plate. The serum obtained from the heart's blood in four cases failed to agglutinate influenza bacilli. The bacilli are pathogenic for guinea-pigs in moderate doses, and are about equal in this respect to influenza bacilli isolated from other sources. Morphologically and culturally they are identical with Pfeiffer's bacillus, all being strictly hemophilic and showing the property of symbiosis. The grouping of these cases is interesting. The occurrence of the disease in twins beginning on the same day is suggestive of a common source of infection, but this could not be determined. Two patients came from a small institution for children in which an epidemic of "colds" had existed for several weeks. The children were all constantly in intimate contact with each other. The second of these patients developed the disease about four weeks after the first was taken ill, or about two weeks after her death. Three of the cases developed in institutions. They did not occur in the poorer parts of the city. Except two, which developed in October, all the cases occurred in the winter months. A general influenza epidemic was not raging during this period.

Utero-Ovarian Asthma.—E. Percepied cites a number of instances in which reflex action from the genital organs was responsible for the development of asthma; in fully 40 per cent. of his female patients with asthma the attacks came on with or just before menstruation. In 3 of the patients in this class the attack always preceded the menses by 4 days; in one patient the attack followed the period. In one case the patient had a cough during menstruation and in the course of years this cough finally became actual asthma. Among his 381 asthmatic female patients the asthma came on at the menopause in 26 and 12 others had then spasmodic coryza, or a wheezing bronchial affection without true asthma. In 7 cases there was great aggravation of the asthma during the menopause. In 8 cases the asthma came on for the first time during a pregnancy or the puerperium and recurred in some of the patients during later pregnancies, while 2 other patients were relieved during pregnancy. Tentative treatment with ovarian or thyroid extract may be instituted, he says, though he never observed any improvement from ovarian treatment in his climacteric cases. The tendency to respiratory troubles in general should be combated and this is the main factor in treatment. His article on the subject appeared in the *Annales de la Soc. Méd.-chir. de Liége*, 1910, XLIX, 126.

Mortality from Infectious Diseases in Europe.—F. Loeb at Munich has compared the vital statistics of various European cities and tabulated the condensed findings in the *Münchener medizinische Wochenschrift*, Nov. 8, 1910, as follows: For each 100,000 inhabitants the highest mortality was for

Small-pox	336.4 at Marseilles,	35.6 at Moscow
Typhoid	81.7 at Marseilles,	58.5 at Athens
Diphtheria and croup	37.0 at Dresden,	33.9 at Moscow
Measles	101.1 at Rome,	45.9 at Vienna
Whooping-cough	37.3 at Copenhagen,	32.2 at Edinburgh
Scarlet fever	45.4 at Warsaw,	39.6 at Moscow
Tuberculosis of lungs and other organs	631.2 at Prague,	
Pulmonary tuberculosis	397.0 at Paris,	337.8 at Lyons
Pulmonary tuberculosis and other respiratory diseases	792.1 at Moscow,	718.5 at Lyons
Pneumonia	303.5 at Warsaw,	238.7 at Brussels
Malignant disease	228.7 at Prague,	157.6 at Lyons

The mortality from pulmonary tuberculosis was:

In seventy-two cities of France with population over 30,000	325.7
In twelve cities of Greece with population over 10,000	276.5
In forty-nine cities of Spain	238.3
In Switzerland	172.1
In German Empire	159.2
In the Netherlands	126.7
In England and Wales	111.7
In Belgium	101.3

In the 350 largest towns in the German Empire from tuberculosis of lungs and other organs the mortality was 192.4.

From "Tuberculosis of Other Organs," Switzerland, 78.5; 49 cities of Spain, 65.2; 72 cities of France, 61.4; England and Wales, 46.9; Germany, 22.5. The mortality from diphtheria and croup for 100,000 inhabitants was:

In Russia	59.1	In German Empire	22.9
In 49 cities of Spain	19.1	In 72 cities of France	9.0
In the Netherlands	8.2		

The mortality from scarlet fever for 100,000 inhabitants was:

In Russia	111.0	In Greece	20.0
In German Empire	19.1	In the Netherlands	8.5

The mortality from small-pox for 100,000 inhabitants was:

In Russia	51.6
In seventy-two cities of France with population over 30,000	27.1
In forty-nine cities of Spain	16.0
In the German Empire	0.1

British Comment on Medical Practice in the United States.—The laws regulating the practice of medicine in the various states and territories of the United States of America differ to a considerable extent in detail. In spirit, however, they are beginning to assume that uniformity which all medical reformers must desire for them. It has long been pointed out that one of the most open doors to abuse of medical practice in the United States was the fact that while in some states an excellent medical curriculum was required before admission to legal practice, in other states but little scientific training was exacted and freedom to practice was extended to dangerous forms of quackery. This position of affairs had its origin, of course, in the evolution of the United States, certain divisions of the country being in the forefront of civilization, while others were, to say the least, in a rudimentary plight; but of late a great process of leveling-up has been witnessed. The progress of the United States is in no way better shown than in the fact that throughout its vast length and breadth there is now an attempt to secure for the people of the country adequate medical treatment based on scientific grounds. . . . We must continue to warn the British medical man desiring to practice his profession in the United States that in all the more enviable centers he will find a vast number, almost a plethora, of medical men, the great proportion of whom have been thoroughly well educated and trained. He must remember also that in the more important states, generally speaking, although the remuneration may rule high, the expense of living is proportionate. He will understand that the less highly the state is developed the more easy will it be for him to obtain a footing, but the less pleasant in all probability will be his professional career.—*Lancet* (London), August 27.

State Boards of Registration

COMING EXAMINATIONS

DELAWARE: Regular, Dover, December 13-15; Homeopathic, Wilmington, December 13-15. Secretary of the Medical Council, Dr. H. W. Briggs, Wilmington.

KENTUCKY: Louisville, December 15-17. Sec., Dr. J. N. McCormack, Bowling Green.

MARYLAND: 1211 Cathedral St., Baltimore, December 13-16. Sec., Dr. J. McPherson Scott, Hagerstown.

VIRGINIA: Lynchburg, Dec. 20-23. Sec., Dr. R. S. Martin, Stuart.

Iowa Adopts Concentration Method

The State University of Iowa College of Medicine has adopted the concentration method of teaching for the courses of the first two years. It is the Harvard plan modified to a considerable extent. The arrangement of the work and the number of class-room hours per week in each subject are shown in the following schedule:

Subject	Class-Room Hours per Week—First Year 1st Sem.	First Year 2d Sem.	Second Year 1st Sem.	Second Year 2d Sem.
Anatomy, histol. and embryol.	27	19	9	—
Physical and organic chem.	4	2	—	—
Physiologic chemistry	—	—	4	6
Physiology	—	10	8	—
Pharmacy	1	—	—	—
Materia medica	—	2	2	—
Pharmacology	—	—	—	4
Bacteriology	—	—	10	—
Pathology	—	—	—	18
Hygiene and dietetics	—	—	—	4
Physical diagnosis	—	—	—	2
Total class-room hrs. per week	32	33	33	34

Since this method applies only to the freshman class this year, it is too early to make any definite statements, but thus far the results are very satisfactory.

Standard of Preliminary Education in Iowa

Dr. G. H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports that at a recent meeting the following schedule was adopted, giving the minimum entrance requirements which must be enforced by all colleges after Jan. 1, 1911, in order to be in good standing:

Sec. 1. The college must require of each student a creditable certificate of good moral character, signed by at least two physicians in good standing in the state from which the applicant comes.

Sec. 2. The minimum scholastic attainments to be required of each student for admission to the medical school must be a four-year course in a fully accredited* high school, academy or seminary in which at least two years of foreign language is required, and, in addition thereto, two full years of college work in an accredited college, which shall include at least ten semester-hours† of chemistry, ten of physics (or six, if one year in the subject was done in high school), six of biology, and ten of foreign language. The foreign language taken in college must include enough Latin to make the total Latin taken in high school and college together equal to two years' work in that subject.

Sec. 3. The above requirements are hereby adopted and are in full force and effect on and after January 1, 1911; and thereafter any medical or osteopathic college requiring a lesser standard of qualifications will not be considered in good standing with the Iowa State Board of Medical Examiners.

* By an "accredited" high school, academy or seminary is meant one that has been inspected and fully accredited by the state university of the state in which it is located; or, in other words, a high school, academy or seminary, a diploma from which would admit the holder to the College of Liberal Arts of the University of Iowa without examination. The matriculation examination for entrance on the study of medicine must be conducted by one especially qualified and not by any member of the medical faculty. Any disputes arising as to an accredited school or as to the standard of examination for applicants for matriculation shall be referred for settlement to the Iowa State Inspector of Schools.

† By "semester-hour" is meant a subject taken for one hour a week during one semester. This equals from sixteen to eighteen hours of didactic class-room work or thirty-two to thirty-six or more hours of laboratory work.

Oregon July Report

Dr. E. B. McDaniel, secretary of the Oregon State Board of Medical Examiners, reports the written examination held at Portland, July 5-7, 1910. The number of subjects examined in was 15; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 106, of whom 58 passed, including 8 osteopaths and 1 non-graduate and 48 failed, including 6 osteopaths. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Denver and Gross College of Medicine	(1909)	77.8
Yale Medical School	(1909)	75
George Washington University	(1904)	75
Rush Medical College (1900) 81.1;	(1907)	83.4
College of Physicians and Surgeons, Chicago	(1905)	76.2
Chicago College of Medicine and Surgery	(1909)	87.9
Hahnemann Medical College and Hospital, Chicago	(1909)	75
State Univ. of Iowa, Coll. of Med. (1897) 79.8;	(1909)	76.4
Medical School of Maine	(1909)	77.1
Johns Hopkins University	(1910) 84.5,	91.3
Southern Homeopathic Medical College	(1899)	78.2
University of Maryland	(1909)	75.4
Detroit College of Medicine (1899) 85.2;	(1903)	77.7
Univ. of Minnesota, College of Medicine (1902) 81;	(1907)	77.1
Barnes Medical College	(1906)	75.9
Creighton Medical College (1901) 75; (1905) 75;	(1908)	75
Columbia University, College of Phys. and Surgs.	(1904)	80.1
New York University Medical College	(1898)	84.5
Starling Medical College	(1901)	78.4
Cincinnati College of Medicine and Surgery	(1908)	74.9
Medical College of Ohio	(1870)	70.4
Willamette University (1907) 77.6; (1910) 75, 81.4, 82.9,		
University of Oregon (1908) 84.7; (1910) 75.8, 75.8, 76.9, 79.2, 79.6, 80, 80.1, 87.7		
University of Pittsburg (1908) 75;	(1909)	79.6
Medico-Chirurgical College, Philadelphia	(1904)	83.1
Woman's Medical College of Pennsylvania	(1908)	78.8
Jefferson Medical College	(1908)	79.7
Western University, London, Ontario	(1907)	75
University of Toronto, Canada	(1907)	79.6
McGill University, Quebec	(1908)	86.5
London Hospital, University of London	(1875)	86.8
FAILED		
Gross Medical College (1892) 64.1;	(1901)	70.3
Denver and Gross College of Medicine	(1908)	69.1
Illinois Medical College	(1908)	70.3
College of Physicians and Surgeons, Chicago (1903) 64.8; (1908) 64.7; (1909) 66.3; (1910) 67.6.		
Rush Medical College (1900) 64;	(1903)	69.6
Physio-Medical College of Indiana	(1906)	71.6
Keokuk Medical College	(1895)	53.3
University of Louisville (1903) 62.9; (1905) 56; (1910)	67;	71.3
Kentucky School of Medicine (1894) 63.9;	(1903)	70
Baltimore Medical College	(1903)	69.6
University of Michigan	(1884)	49.7
University of Nebraska	(1903)	72.1
Barnes Medical College (1893) 58.1;	(1910)	64.1
Washington University, St. Louis	(1909)	70.7
St. Louis College of Physicians and Surgeons	(1909)	68.3
Ohio Medical University	(1904)	41, 72
Eclectic Medical College, Cincinnati	(1906)	60.4
Willamette University (1905) 54.7;	(1909)	54.6
University of Oregon (1908) 69.6, 72.5;	(1910) 71.2,	71.6
University of Pennsylvania	(1908)	71.1
University and Bellevue Hospital Medical College	(1908)	72.5
Memphis Hospital Medical College	(1909)	72.5
Tennessee Medical College (1907) 66.3;	(1908)	65.2
Laval University, Canada	(1904)	54.1
Royal University of Turin, Italy	(1893)	63.7
Facultad de Medicine, Guatemala	(1891)	58.5

The following questions were asked:

CHEMISTRY

1. Define chemistry, including its two principal divisions, and their subdivisions. 2. Name and describe the crystals that may be found in acid urine and in alkaline urine. 3. Differentiate an alkaloid from a glucosid, defining each, and name three of each used in medicine. 4. Write a prescription wherein a chemical reaction resulting in a new end-product is produced, and name the end-product. 5. Write two prescriptions which, if carelessly compounded, would result in explosions, and state what chemical action occurs to produce the explosion in each case. 6. Give a chemical test for arsenic. Name chemical antidote. State how it is prepared. 7. Give a simple test for mineral impurities in drinking water; also for vegetable impurities in drinking water. 8. Define resin. Name five used in medicine.

PHYSIOLOGY

1. In which part of the alimentary tract does the greatest amount of absorption of foods take place? Of water? Is absorption a physical or vital process? 2. State concisely but in detail what happens to proteins, carbohydrates, and fats, after absorption. 3. Give proportion of blood to total body weight. In sudden hemorrhage in a healthy individual, what proportion of blood to the body weight may be lost without proving fatal? 4. What are the principal heat-producing tissues? Mention the circumstances which cause variation in temperature. 5. Where are the following centers: (a) respiratory, (b) micturition, (c) vasomotor, (d) visual, (e) auditory? 6. What are the important parts of the eye physiologically? 7. Name and specifically state the functions of the tenth cranial nerve. 8. Define diapedesis, hemolysis, osmosis, zymogen, colostrum, cholesterin.

HISTOLOGY

1. What is a gland? Name its forms. Of what does the secreting portion of all glands consist? 2. Define and classify epithelial tissue. 3. Of what do ganglia consist? Name kinds of ganglia and state what covers outer surface. 4. State specifically where you find (a) Meissner's plexus, (b) Auerbach's plexus, (c) crypts of Lieberkuhn, (d) Bowman's capsule, (e) Heller's plexus.

PATHOLOGY

1. Differentiate the blood of pernicious anemia from that of myelogenous leukemia. 2. Give pathology of follicular tonsilitis in detail. 3. Give pathologic changes taking place in chronic myocarditis. 4. Give pathologic anatomy of simple catarrhal bronchopneumonia.

NERVOUS DISEASES

1. Give the etiology and diagnosis of sciatic neuralgia (sciatica). 2. Give the differential diagnosis between hemorrhage into the brain substance and ventricular hemorrhage and meningeal hemorrhage. 3. Give symptoms of bulbar paralysis. 4. Describe in detail the "rest cure" treatment of neurasthenia.

OBSTETRICS

1. What is the difference in measurements between the anteroposterior diameter of the superior strait and the oblique diameter at the same point? 2. (a) Describe the process of ovulation. (b) What influence, if any, has ovulation on the function of menstruation? What is the source of blood-supply appearing in menstruation? 3. Describe the process of gestation from conception to parturition. 4. What is the cause of pernicious vomiting in pregnancy? Give treatment. 5. Define bourglass contraction of the uterus. (b) What is the danger to the mother in this complication? (c) Give treatment. 6. (a) In case of laceration of the perineum in labor, when and how would you repair it? (b) Describe after-treatment. 7. Describe the change taking place in the circulation of the child coincident with birth. 8. Describe your management of a case of ante-partum eclampsia at full term.

DIAGNOSIS

1. Give diagnosis of both acute and chronic appendicitis. 2. Diagnose hepatic colic. 3. Give differential diagnosis of diphtheria and acute follicular tonsilitis. 4. Diagnose acute inflammatory rheumatism. 5. Diagnose cirrhosis or chronic atrophy of the liver. 6. Give diagnosis of cerebrospinal neurasthenia. 7. Diagnosticate diabetes mellitus. 8. Diagnose anterior poliomyelitis.

GYNECOLOGY

1. Give etiology and symptoms of obstructive dysmenorrhea. 2. What are the (non-surgical) methods of replacing a retroverted or retroflexed uterus when fixed by adhesions? 3. What is the treatment—(a) prophylactic and (b) curative—of chronic metritis? 4. Give symptoms and diagnosis of ectopic gestation. 5. Describe the method and principal points to be noted in performing bimanual examination per vaginam. 6. What are the causes and treatment of pelvic peritonitis? 7. How does gonorrheal vaginitis differ from the simple catarrhal? 8. What are the principal displacements of the uterus? Describe two of them.

PRACTICE OF MEDICINE

1. Differentiate the crepitant rale and the subcrepitant rale, and give the clinical significance of each. 2. Describe the natural heart-sounds. 3. Give the physical signs of pleuritic effusion. 4. What are the physical signs of aortic regurgitation? 5. Give the period of incubation and of eruption of the exanthemata. 6. Give the symptoms and treatment of tetanus. 7. Give the etiology, symptoms and treatment of gastrointestinal catarrh of infancy and childhood. 8. What are the symptoms of acute parenchymatous nephritis?

EYE AND EAR

1. What are the causes of ptosis and the remedial measures employed? 2. What are the pathologic conditions in gonorrheal ophthalmia and give the treatment of gonorrheal ophthalmia? 3. Where should the opening be made in order to reach the antrum in a case of abscess of the middle ear? 4. Give the etiology, diagnosis and treatment of acute otitis media.

SURGERY

1. What arteries, muscles and nerves would be severed in amputation at the middle third of the humerus? 2. Describe the symptoms and give the treatment of hemorrhage from the middle meningeal artery. 3. Name and describe the different varieties of fracture. 4. Describe the several varieties of club-foot. 5. Relate the causes of intestinal obstruction. 6. Describe hypospadias, epispadias, phimosis and paraphimosis. 7. Name the different varieties of benign tumors. 8. What are the causes and the treatment of pelvic peritonitis?

DISEASES OF CHILDREN

1. Describe the symptoms of empyema and give treatment. 2. Describe intussusception and volvulus; give treatment of both conditions. 3. Name the different varieties of stomatitis. 4. Describe chorea and give treatment of chorea minor. 5. Give symptoms of otitis media and treatment of same. 6. Describe the eruption of scarlet fever, measles and syphilis, and give the diagnostic points of each. 7. Write a prescription for a child 5 years old suffering from *tænia solium*. 8. Give symptoms of acute anterior poliomyelitis.

MATERIA MEDICA AND THERAPEUTICS (HOMEOPATHIC)

1. Name three remedies useful in suppurative processes, with indications for the use of each. 2. Name the so-called "twelve tissue remedies." 3. Name the tissue remedies most useful in mental states and affections. 4. Name the tissue remedies most useful in simple fevers. 5. Compare respiratory symptoms of bryonia, phosphorous and antimonium tartaricum. 6. Give the mental symptoms of cannabis indica and ignatia. 7. Cinchona: give its common name; form of preparation used; sphere of action. 8. Arsenicum album: write as much as you can about this drug and its action, using not more than twenty lines, or 100 to 125 words.

MATERIA MEDICA AND THERAPEUTICS

1. Define: (a) materia medica, (b) therapeutics, (c) minimum dose, (d) maximum dose, (e) toxic dose, (f) lethal dose. 2. How much silver nitrate would you use to make 2 ounces of 10 per cent. solution of the same in water and show your mathematical work? 3. How would you diagnose and state briefly how you would treat poisoning by: (a) hydrocyanic acid, (b) arsenic, (c) strychnia, (d) belladonna, (e) carbolic acid? 4. Iodin: (a) give chief source and brief description of same; (b) name five preparations used in medicine, containing iodin free or in combination; (c) name three conditions in which iodid or its salts are indicated. 5. Salol: (a) give official name; (b) give dose; (c) describe briefly its action on the stomach and small intestines. 6. Give the physiologic action of veratrum and aconite and name diseases in which they are useful, stating dose. 7. Name two of the most important remedies used in the treatment of syphilis, the stages in which indicated and give method of administration. 8. Describe the treatment of gonorrhea in the female.

Louisiana October Report

Dr. A. B. Brown, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, October 18-19, 1910. The number of subjects examined in was 10; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 31, of whom 11 passed and 20 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Alabama	(1910)	75
University of Louisville	(1910)	78.1, 80.1, 87.6
Tulane University of Louisiana	(1910)	76.5, 79.8, 83.9
Baltimore Medical College	(1907)	90.2
Cornell University Medical College	(1910)	95
University of Nashville	(1910)	75
Memphis Hospital Medical College	(1903	77

FAILED

University of Alabama	(1902)	63.8
University of Arkansas	(1909)	66.2
University of Louisville	(1910)	55, 60.2
Maryland Medical College	(1910)	54.8
Flint Medical College	(1910)	63.1
Memphis Hospital Medical College	(1901) 66.6; (1907) (1910) 59.4, 62.7, 63.6, 63.7, 66.1, 68.5, 68.5.	60.9;
Chattanooga Medical College	(1909)	61.9
Meharry Medical College	(1909) 66.1, 67.3; (1910)	56.5
Baylor University	(1905)	73.7

Minnesota October Report

Dr. W. S. Fullerton, Secretary of the Minnesota State Board of Medical Examiners, reports the written examination held at Minneapolis, October 4-7, 1910. The number of subjects examined in was ten; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 21, of whom 17 passed and 4 failed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Northwestern University Medical School	(1910)	77.8, 79.6
Rush Medical College	(1910)	79.7
Chicago College of Medicine and Surgery	(1910)	82.6
Univ. of Michigan, Coll. of Medicine and Surgery	(1910)	80.8
University of Minnesota, College of Med. and Surg. (1910) 76.9, 80.8, 82.9.	(1909)	80.7;
St. Louis University	(1908)	78.1
Long Island College Hospital	(1899)	85.2
Columbia University, Coll. of Phys. and Surg.	(1910)	80.8
Jefferson Medical College	(1910)	83.8
Hahnemann Medical College of Philadelphia	(1910)	83.3
Marquette University	(1910)	77.7
University of Toronto, Ontario	(1910)	86
University of Marburg, Prussia	(1878)*	

FAILED

Northwestern University Medical School	(1910)	72.9
Marquette University	(1909) 63.6;	(1910) 73.3
Laval University, Quebec	(1910)	68.9

LICENSED THROUGH RECIPROCITY

College.	Year Grad.	Reciprocity with
College of Physicians and Surgeons, Chicago	(1907)	Iowa
Northwestern University Medical School	(2, 1909)	Illinois
Rush Medical College (1892) Iowa;	(1903) (1909)	Illinois
College of Medicine and Surgery, Chicago	(1909)	Illinois
College of Physicians and Surgeons, Baltimore	(1903)	New Jersey
Johns Hopkins University	(1906)	Maryland
Hamline University	(1909)	N. Dakota
Creighton Medical College	(1910)	Nebraska

* No percentage given.

Book Notices

THE PRACTICE OF MEDICINE. A Guide to the Nature, Discrimination and Management of Disease. By A. O. J. Kelly, M. D., Assistant Professor of Medicine in the University of Pennsylvania and Assistant Physician to the University Hospital, Philadelphia. Cloth. Price, $4.75 net. Pp. 948, with illustrations. Philadelphia: Lea & Febiger, 1910.

The tremendous changes in our conceptions of pathologic as well as physiologic processes, and consequently in treatment, are reflected in this new book. In the first chapter, on infectious diseases, is condensed in a brief space reference to all the work of the last ten or fifteen years in the blood and secretions—everything from antigens, antibodies and agglutinins, hormones and internal secretions to lysins and the toxins of the zooparasites. The student and the junior practitioner, for whom this work is intended, unless exceptionally well taught and attentive in his college course, and unless conversant with current medical literature, must indeed be bewildered by all this wealth of reference to the "newer pathology," but it illustrates the increasing complexity of medicine.

In looking over the classification of diseases one is impressed with the increased number of and the increased space given to the zooparasitic infections—the protozoan and metazoan infections—by the formidable list of thirty-seven diseases which the author has classified under the head of "Infections of Unknown or Doubtful Etiology," and by the list of twelve "Nervous Diseases of Functional or Unknown Nature." So that with all the advance that has been made, the ground seems merely scratched and the investigator still has an immense and rich field before him for cultivation.

Noteworthy also is the increasing number of diseases or conditions described under new separate heads, or described under new designations, in connection with certain systems. Under diseases of the circulatory system, for instance, we have weak or insufficient heart, overstrained or irritable heart, the infectious febrile heart, the fibroid heart and tumors and parasites of the heart; multiple serositis under diseases of the peritoneum, perinephritis and paranephritis under diseases of the urinary system, etc. And it may be added that there are quite a number of conditions described at length, with a lengthy probable symptomatology, which the author admits can be diagnosed only at autopsy. The discussion of pathologic physiology at the beginning of each new section is a good feature of the book.

The author advocates the tub bath and milk diet in typhoid fever, and says that he has never seen good results from a generous diet. Preventive inoculation in typhoid, he believes, is of doubtful value, and the serum treatment has not commended itself to the profession. The treatment of bacterial infections by bacterins is approved, and pneumonia patients should have open air or at least fresh-air treatment throughout in preference to "canned" oxygen *in extremis*. He calls attention to the revised conception of diphtheria, to the effect that it is often more than an infection by the Klebs-Loeffler bacillus, and calls the microorganism of cholera by the rather unusual designation of *Microspira comma*. Uncinariasis, he states, exists in Florida in 90 per cent. of the population, and in subtropical countries and in Germany, but he says nothing about its prevalence in other parts of the United States. The lavish use of parentheses throughout the text is jarring on the reader, and detracts from an easy, readable style. The foundation of a good, modern work is here, and when it has passed through the refining fire of a revision, it will take its place among the standard works on the practice of medicine.

CLINICAL OBSTETRICS. By Robert Jardine, M.D., Edin., Professor of Midwifery in St. Mungo's College, Glasgow. Third Edition. Cloth. Price, $6.50 net. Pp. 716, with 112 illustrations. New York: William Wood & Co., 1910.

Professor Jardine's book differs from most other books on obstetrics in that a considerable part of the space is given to the relation of cases illustrative of nearly every complication of pregnancy, labor and the puerperium. The term "clinical obstetrics" is therefore appropriate. The descriptions of the normal and pathologic conditions are nevertheless clear and fairly complete although sometimes brief while the symptoms, diagnosis and treatment are sufficiently given and make the book a satisfactory text-book for students. In this edition considerable new matter has been added, especially on the subject of neuritis, pyelitis, acute yellow atrophy of the liver, eclampsia, etc., as well as the reports of fifty new cases. There are now thirty-two cases of eclampsia reported, and a number of rare complications. The illustrations are well selected and well made.

This way of writing a book on obstetrics, which is essentially the same as that followed by Smellie, the great pioneer English obstetrician, has distinct advantages. First, it assures the reader that the author knows whereof he speaks. One may know at the beginning that the book is not simply another compilation. Then the conclusions reached by the writer can be judged, for the material on which they are based is presented with the conclusions. The chief criticism of Jardine's method of presenting his cases is that when a number are reported to illustrate a complication, as in eclampsia, he does not classify the cases and compare them in a brief and clear summary. This makes it difficult for the reader to obtain a comprehensive view of the cases and form a judgment of the results without a considerable amount of work that might have been avoided had the author followed the method of study and comparison that is adopted by the directors of clinics.

Some objections might be raised to certain points in the technic of management and operation. For example, the management of mammary complications is not in accord with the present state of our knowledge of the physiology of the breast and of the way to treat infections. The differentiation between engorgement and infection is not clearly made, and the statement that the temperature will usually be raised a degree or two while the milk is appearing is distinctly a mistake. The application of belladonna, hot fomentations and boric poultices in case a breast becomes hardened and inflamed will favor suppuration that could be avoided by the opposite line of treatment.

The statement that shaving the parts in serious operations is undesirable in private practice gives a doubtful impression of the general aseptic management.

The amount of space given to spinal anesthesia is astonishing; so is the statement that this method of anesthesia is suitable for forceps operation.

The reason for the continued employment of the side position in forceps operation is not understood by us. The results of the induction of premature labor in the six cases given were not very satisfactory, as four of the children were lost. Either the operation should be condemned or the cases should be criticized to show how the result can be improved. The extraperitoneal Cesarean section is not mentioned, while vaginal Cesarean section, with which the author has had no experience, is very briefly described.

The book is a successful attempt to present the conclusions of a teacher of much experience and illustrates the subject with frank unvarnished records of cases that reenforce the teaching and furnish a basis for the conclusions. Such a book cannot be other than a valuable addition to obstetric literature. The work is beautifully printed and illustrated.

DIFFICULT LABOR. A Guide to its Management for Students and Practitioners. By G. Ernest Herman, F.R.C.S., Consulting Obstetric Physician to the London Hospital. Cloth. Price, $2.50 net. Pp. 347, with 180 illustrations. New York: William Wood and Co., 1910.

This fifth edition of Herman's popular book on the management of difficult labor has been thoroughly revised and considerably enlarged, new illustrations having been added, together with a chapter on retroversion of the gravid uterus and puerperal eclampsia. The book is characterized by a clear dogmatic style, suitable for a manual designed for the practical use of students and practitioners. The heavy type headings of chapters and paragraphs and the clear arrangement of matter make the book easy to use in reference. It is evidently the work of an experienced teacher who knows what is needed by his readers.

In general the work is in accord with modern American obstetric practice. It would have been desirable, however, to add the metric measurements as many have learned these

measurements instead of the English inches. One is surprised to find little description of the aseptic technic of operation. The use of gloves is not recommended, and the illustration of forceps operation shows bare hands and likewise no protection of the patient. The operation is done on the bed with the patient in the side position. Greasing the perineum is allowed, although the author doubts that it can help much in preventing lacerations.

With these exceptions, the book is eminently practical. The author has in mind the needs of the busy practitioner who will not remember too much of his theoretical training but needs clear and definite rules for action. If these rules are not all in accord with the most modern trend of practice they represent at least the results of much experience and are perhaps as safe as the more radical methods of procedure that in some clinics have become popular in recent years. The book is worthy of the careful study of all.

LEHRBUCH DER OHRENHEILKUNDE. Von Dr. Victor Urbantschitsch, O.O. Professor der Ohrenheilkunde an der Wiener Universität und Vorstand der K. K. Universitätsklinik für Ohrenkranke. Fifth Edition. Paper. Price, 16 marks. Pp. 622, with 156 illustrations. Vienna: Urban & Schwarzenberg, 1910.

This is the fifth edition, "completely revised and enlarged," of Urbantschitsch's comprehensive work. The author takes up the anatomy and physiology of the organ to be discussed, following this with the clinical side of the subject. There are many interesting illustrations throughout the book.

In the study of the symptomatology and pathology of the various ear affections the author treats of a number of new matters in more detail than is found in most similar books. Despite the fact that Bezold, Politzer and others have long ago and repeatedly denied that hearing exercises can be of any value in cases of deafness, Urbantschitsch still maintains his faith in them and describes his methods in detail.

The Leidler and Schüler method of *x*-ray examination of the mastoid is referred to and it would seem that skiagrams are of some assistance in the diagnosis of certain mastoid conditions. The details of Bárány's modification of the Rinné test are given. With reference to the physiology and pathology of the labyrinth, the author has drawn from and quoted the work done by Bárány and Ruttin. Nystagmus is dealt with in detail. Bárány's work on the physiology and pathology of the semicircular canals (1907) is quoted, and one who has previously read but little regarding nystagmus can obtain a very good working knowledge of the condition. Quite an interesting section is that dealing with the medicolegal status of injuries to the ear.

All in all, the present edition is a very readable, clear, authoritative and valuable production.

INSECTS AND DISEASE. A Popular Account of the Way in Which Insects May Spread or Cause Some of Our Common Diseases. By Reuben W. Doane, A.B., Assistant Professor of Entomology, Leland Stanford Junior University. Cloth. Price, $1.50 net. Pp. 221, with 112 illustrations. New York: Henry Holt & Co., 1910.

This book gives, in untechnical language, an interesting account of the part insects play in the dissemination of disease. The relation of house-flies to typhoid, of mosquitoes to malaria, yellow-fever and elephantiasis, of fleas to plague, of tsetse-flies to sleeping-sickness, and the suspected relation of insects to several other diseases are explained. Some directions are given for destroying or expelling insect pests; and an excellent, though not exhaustive, classified critical bibliography, completes the book.

A few typographical errors unfortunately tend to impair the reader's confidence in the carefulness of the proofreading and hence in the accuracy of the spellings used. *Musca domestica*, for instance, on page 201 hides behind the alias of *Muca domestica;* M. J. Rosenau is referred to once as "Roseman" and twice as "Rosenan;" Finlay and Ricketts are fellow-sufferers.

Apparently out of a laudable (but, we believe, mistaken) desire to spare the average reader, the legends for the illustrations which give magnified views contain no indication of the scale of enlargement. In the case of the less familiar insects especially, it would have been desirable to indicate the scale of magnification, and perhaps to give a macroscopic picture by the side of the microscopic to aid in the recognition of the insect.

THE EXAMINATION OF THE FUNCTIONS OF THE INTESTINES BY MEANS OF THE TEST DIET. Its Application in Medical Practice and Its Diagnostic and Therapeutic Value. By Dr. Adolf Schmidt, Halle, A.S. Authorized Translation from the Second Revised and Enlarged German Edition by Charles D. Aaron, M.D., Professor of Diseases of the Stomach and Intestines in the Detroit Post-Graduate School of Medicine. Price, $1.50 net. Cloth. Pp. 126, with illustrations. Philadelphia: F. A. Davis Co., 1909.

While not comparable with the examination of stomach contents, the examination of the feces after a test diet gives reasonable hope of greatly advancing our knowledge of functional disorders of the intestines. The method of Schmidt has been somewhat simplified since the publication of the first edition, and may now be carried out by any practitioner with a minimum of technical skill and of laboratory equipment. This method has stood the test of time, and is destined to outlive its competitors such as the desmoid test, the bead test, etc. In the present edition Professor Schmidt has developed more fully the relations of the stomach, liver and pancreas to intestinal diseases and this chapter forms a valuable contribution to a neglected field of gastrointestinal pathology. The last chapter, dealing with chronic constipation, presents the author's theory that in constipation digestion is too good and presents the reasons for the agar-agar treatment which, unfortunately, has been appropriated by the proprietary interests. The book is tastefully bound and well illustrated.

APPLIED ANATOMY. The Construction of the Human Body Considered in Relation to Its Functions, Diseases and Injuries. By Gwilym G. Davis, M.D., Associate Professor of Applied Anatomy, University of Pennsylvania. Cloth. Price, $6. Pp. 630, with 680 illustrations by E. F. Faber. Philadelphia: J. B. Lippincott Co., 1910.

On account of the great mass of facts to be learned, the college course in anatomy is confined almost entirely to the descriptive work of the large anatomies. Only meager and superficial attention is given to applied anatomy in the teaching of surgery and physical diagnosis. With a fairly good grounding in descriptive anatomy, a year devoted to the study of applied anatomy would give a student an invaluable knowledge of the subject that would prove useful not only in his subsequent study of diagnosis and all the surgical branches, but would give him something that he could apply with immense advantage daily after entering on general practice. This book with its numerous splendid illustrations of normal and pathologic anatomy and anatomic relations, and its practical text, should prove of great usefulness, to student, general practitioner and surgeon, in their daily work.

VII. BERICHT DER DEUTSCHEN GESELLSCHAFT FÜR SAMARITER- UND RETTUNGSWESEN FÜR DIE JAHRE 1908 UND 1909. Herausgegeben vom Vorstand. Paper. Pp. 171. Leipsig: Nikolaikirchhof.

First-aid and life-saving institutions and societies scarcely have an independent existence in the United States; the combination of such societies into a national association originated in Germany. The present volume is the seventh report of the German Association, which is now in the fifteenth year of its active existence. It was formerly known as the Deutscher Samariter-Bund, but with the natural development and expansion of its work, two years ago took the present title. The report includes, in addition to the ordinary proceedings of the society, reports on the progress of life-saving work in various occupations and localities. The articles are illustrated and afford useful hints to those interested in such work. An extension of such associations is indicated as affording a preparation for emergencies in which life is liable to be sacrificed because the necessary men and materials for first aid are not at hand.

THE DISEASES OF WOMEN. A Handbook for Students and Practitioners. By J. Bland-Sutton, F.R.C.S., Eng., Surgeon to the Middlesex Hospital, and Arthur E. Giles, M.D., B.Sc. Lond., F.R.C.S., Edin., Surgeon to the Chelsea Hospital for Women. Cloth. Price, $3.25. Pp. 554, with 127 illustrations. New York: Rebman Company, 1910.

In the latest edition of this well-known work on gynecology, the authors have elaborated certain subjects such as fibrosis and adenomyoma of the uterus and generally have brought the book up to date. The pathologic classification of endometritis has been changed to correspond to the recognized nomenclature, and attention is called to the difficulties of differentiation between appendicitis and pelvic inflammation. A description of the technic of Wertheim's operation for carcinoma of the uterus has also been added.

Medicolegal

Liability for Gauze Left in Abdomen in Gonorrheal Suppuration—Custom of Dressing Wounds and Keeping Track of Gauze—Expert Testimony

The Supreme Court of Iowa approves of a judgment in favor of the plaintiff in the malpractice case of Reynolds vs. Smith and another (127 N. W. R., 193). It says that an abdominal operation for the removal of a cyst or tumor was performed on the plaintiff January 16 by Dr. Schooler, a partner of Dr. Smith. Dr. Smith attended the patient until the 19th, when Dr. Schooler, who had been temporarily absent, resumed charge and attended the patient until her return to her home in Minnesota February 23. The wound had not entirely healed, and, on her arrival in Minnesota, a Dr. Schmitt dressed it. On the 27th he made an examination, and, according to his testimony, found a piece of surgeon's gauze about 16 inches square in the abdominal cavity, and, after enlarging the opening, removed it. Though the wound then healed, the plaintiff continued to be weak and suffered from melancholia for some time, and, in April of the following year, was operated on by Dr. Schmitt for hernia. This suit was brought to recover damages for that, as was alleged, the defendants were negligent in failing to discover and remove the gauze, subsequently extracted by Dr. Schmitt.

Counsel for the defendants contended that the record as a whole did not show that the defendants failed to exercise the degree of skill and care exacted in such cases. But that both were eminent in their profession alone could not exonerate them from the charge of negligence. The most proficient are subject to the infirmities of human nature, and, as the books demonstrate, sometimes may lapse below the standard by which their conduct is to be measured. The history of the patient was such as permitted of no relaxation in attention at and after the operation. At an operation five years before, Dr. Schooler had removed her ovaries and Fallopian tubes, and at another operation had removed her womb. If she was afflicted with a gonorrheal affection, this may have exacted greater caution, or might have been thought to account for the delay in healing after the operation was performed.

Dr. Schooler testified that two gauze pads were left in the patient, and Dr. Smith, that he removed those pieces three days later. It was the habit of Dr. Schooler to knot the second piece of gauze inserted, and Dr. Smith found one of those removed in that condition. He then inserted another piece of gauze several yards long to prevent bleeding and to act as a drain, leaving the end protruding through the wound. On Dr. Schooler's return on the second day thereafter he resumed charge and inserted a drainage tube and was of opinion that had there been gauze in the body he would have discovered it. Before the patient left for home he testified to having again examined her without discovering anything abnormal save the continued suppuration.

On the other hand, Mrs. Reynolds related that Dr. Smith removed some of the gauze on Thursday, after the operation had been performed on the Monday previous, cutting it off with scissors, and some more in the same way on the following day; and that she did not remember that any more had been inserted. Her husband's testimony was corroborative, and to the effect that Dr. Smith removed the last of the gauze on Sunday.

It will be noted that none of the witnesses pretended to account for the gauze inserted by Dr. Smith after removing the pads put in by Dr. Schooler, but it appeared to have been several times longer than that extracted by Dr. Smith. Of course neither of the defendants intentionally allowed any foreign substance to remain in the abdomen. No one so claimed. But the jury might have found that the gauze was taken therefrom as testified by Dr. Schmitt; that it should have been removed within a few days after the operation; that the failure of the wound to heal indicated an abnormal condition, and that, even though the patient had suffered from specific infection, this exacted careful examination as to the cause; and that, all this being so, the issue as to whether had the defendants exercised that degree of skill and care required of them, the gauze would have been discovered and removed before the plaintiff left the hospital, was for the jury to determine.

The defendants requested several instructions to the effect that all exacted of them was that they follow the custom and usages of physicians in the performing of such operations in the vicinity where they practiced. These were rightly refused, for no evidence was adduced that any particular custom or usage in the matter of avoiding leaving the gauze in the plaintiff was actually followed. Moreover, if there had been such evidence, those instructions ought not to have been given, for, in view of the failure of the wound to heal, the continuance of suppuration, together with the significance of leaving such a substance in the body, the issue of negligence must have been submitted to the jury.

The evidence disclosed that nurses and the intern sometimes dressed the wound. They were not employees or agents of the defendants, and, unless the defendants were negligent in permitting this to be done by them, they were not responsible for their acts save in so far as their duty exacted examination of the wound and proper treatment. Had there been evidence tending to show that from the acts or omissions of the nurses and intern a gauze became lost and was allowed to remain in the plaintiff's abdomen, the jury must have been instructed as above; but, in the absence of such evidence, and especially in view of explicit instructions as to the necessity of an affirmative finding of negligence on the part of the defendants, there was no error in refusing to give an instruction of the character requested.

The intern was asked to explain the practice which obtained at the hospital in determining whether all gauze pads used in operations were accounted for. An objection to the inquiry was sustained. The ruling was correct, for there was no evidence that any precaution had been taken in operating on the plaintiff save by tying a knot in the second piece of gauze inserted. True, Dr. Schooler testified that "we have a way or method by which to keep track of the various pieces put in there. * * * The nurses count the pieces of gauze pads that are used." But the record did not indicate whether such way or method was followed in performing the operation on the plaintiff. Had there been evidence of how track of the gauze was actually kept, doubtless, as bearing on the issue of negligence, testimony that this was in accord with custom would have been competent. In the absence of such evidence, the rule is otherwise.

The jury were instructed, in part: "Though it is with a view of aiding you in determining the questions submitted to you that expert testimony has been admitted, you should bear in mind that the opinions of experts may be correct or incorrect, and that such testimony, depending on whether it tends to reveal the truth or otherwise, may or may not aid you in arriving at a correct conclusion, and that on you rests the responsibility of a true verdict. The expert testimony should be weighed and considered by you as you weigh and consider the other testimony, and taking into consideration the amount of skill and knowledge possessed by the witnesses giving expert testimony, the matters testified to by them, the other evidence and facts and circumstances of the case, you should give to expert testimony such weight and credit, and only such weight and credit, as you deem it justly entitled to receive. It is your duty to give to the evidence, and all of the evidence in this case, full and fair consideration, and draw therefrom the conclusion which your judgment and consciences approve as just and right. When expert witnesses testify to matter of fact, from personal knowledge, their testimony, as to facts within their personal knowledge, should "be considered the same as that of any other witnesses who testify from personal knowledge." The court does not think the instruction, when fairly construed, disparaged expert testimony or indicated that it might be rejected because such was its import. Like other testimony, it must reveal the truth in order to be of aid to the jury. That it may or may not be correct is also true. The manifest design of the instruction was to caution the jury against blindly accepting what experts on either side had said, as is often likely to be done, owing to the expert's knowledge and the jury's ignorance of the subject of inquiry, and to

emphasize their duty to apply the same rules in weighing and testing expert as is applied to other testimony. The instruction is not open for fair criticism.

The jury allowed damages in the sum of $2,000, but the court thinks that excessive when it is considered that the operation was performed January 16 and that the gauze, which might properly have been allowed to remain for about a week, was removed February 27. The circumstance that the wound healed within a few days thereafter tended strongly to show that the consequences were not serious. That the patient recovered immediately after the operation for hernia in April of the following year tended to prove that the suffering from melancholia, headache, and insomnia were due to the hernia, rather than to other conditions produced by leaving the gauze pad in the abdomen. Dr. Schmitt thought the hernia due to the last-mentioned cause, but it was exceedingly doubtful as to the record warranting such inference. Wherefore, a remission of $800 from the judgment is made the condition for its affirmance.

Society Proceedings

COMING MEETINGS

Southern Surg. and Gyn. Assn., Nashville, Dec. 13-15.
Western Surg. and Gyn. Assn., Chicago, Dec. 19-20.

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY

First Annual Meeting, held in Baltimore, Nov. 9-11, 1910

The President, Dr. J. H. Mason Knox, Jr., in the Chair

A summary of this meeting was given, with the election of officers, in THE JOURNAL, November 26, page 1903, and one of the reports was summarized and discussed December 3, page 1999.

The Duty of a Nation to Its Potential Citizens

Dr. J. H. Mason Knox, Jr., Baltimore: One baby out of every five born dies before it is a year old. It is conservatively estimated that at least one-half of this infantile death rate is a toll paid to parental ignorance and indifference and can largely be averted. The best means of prevention is through an educational campaign, with the mother as the pivotal point. Among matters of fundamental importance are the prompt and accurate registration of births; maternal nursing, and the extension of the educational curricula in the high and normal schools to include better preparation for motherhood. This organization was formed as the result of a conference called by the American Academy of Medicine at Yale University, November, 1909. Permanent headquarters were opened in the Medical and Chirurgical Faculty Building, Baltimore, Jan. 1, 1910; 500 active members have been enrolled. Thirty-two states, the District of Columbia and Canada are represented. Thirty-three organizations, including nurses associations, milk dispensaries, child-helping societies, social settlements, health departments, etc., have become affiliated. The work of the year was devoted principally to educational propaganda. More than 8,000 pieces of mail were sent out from headquarters, and 22,000 circulars and leaflets were distributed. The headquarters have served also as a clearing house for information on matters pertaining to the reduction of infant mortality, and have brought many activities in various parts of the country in touch with each other.

M. Jusserand, the French Ambassador, described some of the preventive undertakings carried on in France, which have served as models for those in other lands, especially the Consultations for Nurslings established by Professor Budin. Twenty years ago, when the first of these was founded, a man of 90 had a better chance to live one week than a child one day old. Dr. Budin especially taught that thing which is so obvious, which like so many obvious things, had been lost sight of, for when a thing is obvious no one deems it worth while to think of and it soon becomes forgotten and has to be discovered again. The great discovery was that children are meant to be nursed by their mothers; that the best cow's milk cannot compare with the mother's milk. Nevertheless, there are cases in which recourse has to be had to cow's milk and mothers are taught what sort of sterilized milk they should employ. Along that line many children are saved. This invention is really a very simple one, but it has had such an effect that it is imitated throughout the country. Restaurants have been established at which food is provided free of cost to nursing mothers. Another feature of the French campaign against infant mortality is the teaching of hygiene in the elementary schools. An appropriate motto for the American Association for Study and Prevention of Infant Mortality is the three words: "Learn. Teach. Live."

Prof. Irving Fisher, New Haven, Conn.: Evidences of the fact that interest in the problem of conserving our national vitality is greater to-day than ever before, are: the campaign against tuberculosis, the study of the pollution of streams, the campaign against the social evil, and finally the campaign directed toward the reduction of infant mortality. The latter has, perhaps, a wider popular appeal than any other. It is beginning, also, to appeal to the statesman and to some extent to the ordinary politician. Carefully gathered statistics which are published in the report to the government on national vitality, show that at least 125,000 of the 300,000 deaths among infants, which occur annually, could be prevented, if modern hygiene were universally practiced. No one who could realize the immense number of needless deaths, would need further argument as to the importance of this movement for the study and prevention of infant mortality. But the public, on the whole is apathetic and needs to be aroused. The assertion has been made in some quarters that effort directed toward the prevention of infant mortality interferes with the operation of the law of natural selection, that the results of such effort would be to prolong the lives of the weak, to increase the miseries of the poor and to reduce the average vitality of the next generation. A careful study of the situation shows that the argument is fallacious, that instead of interfering with natural selection the movement aims to remove the interferences with natural selection which modern civilization has created. It is not a feature of natural selection that babies' milk should be adulterated or contaminated with germs. The movement for the prevention of infant mortality amounts in the end simply to this—to give back to the baby what is the baby's natural birthright, namely, pure milk and pure air. The elimination of disease acts both directly and indirectly toward the improvement in health and vitality not only of the present but of the succeeding generations. Instead of going back to primitive conditions we ought to go forward. The cure for the evils of civilization is more civilization. In accordance with what seems to be biologic law, a lowered birth rate accompanied by a reduced death rate characterize the progress of animal organisms. Applied to mankind, the process makes for economy; the birth of a human being becomes a more important event; and it makes for the conservation of the life that is born. The conservation of infant lives is but part of the problem of the conservation of all human life. While more has been done by governments in other countries toward the conservation of national vitality than in our own land, the movement directed toward the establishment of a federal department of health has made steady progress. It has the endorsement of the President of the United States; of a number of far-sighted and patriotic congressmen, as well as of a large number of the medical and hygienic organizations of the United States. Opposition to the movement comes from special interests actuated by commercial motives. It remains for the people of the United States to say whether the commercial interests of those who produce the food for babies are to be put above the valuation of the babies themselves. And if the department of health, when established, shall have had the effect of restricting the freedom of those who would like to put into the stomachs of babies what is bad for the babies, it will have had for one of its results the reduction of infant mortality.

Dr. Abraham Jacobi, New York: The highest infant mortality occurs during the first few weeks of life; inheritance is a powerful factor in the formation and the health of the baby; the diseases and frailties of the parents will be repro-

duced, actually or potentially, in the offspring. Parents with hysteria, or epilepsy or other nervous diseases, with diabetes, alcoholism, criminal instincts or other forms of insanity, insure dispositions to kindred, if not the same affections. Syphilis is fatal to the embryo or fetus, dangerous to the baby, who frequently succumbs to its ravages within a few days or weeks. Tuberculosis in the mother will only predispose the baby; open tuberculosis will directly infect the nursling—it may be, the first day or week. So individual caution of the present generation will or may, and must, safeguard the existence of the child that is to be. Marriages are not permitted between the immature even now; they should be prohibited among the advanced tuberculous, the insane, the incurable epileptic, the hopeless criminal.

Our young doctors, unless they have had the great luck of being taught in obstetric wards and practice, learn, if at all, at the expense of the women who bear children and of the infants that are borne by them. Our medical schools do not begin to convey adequate obstetric knowledge and practice to the students. The number of poor who suffer for want of the safety vouchsafed by knowledge and by means, increases every year. Only a part of the deaths due to puerperal fever are attributed to it, other causes such as acute Bright's disease, peritonitis, pneumonia, being inscribed on the death certificates. Puerperal fever is avoidable; its occurrence is a scandal and a shame in the community—like small-pox or typhoid fever; and no actual precaution is taken to avoid it. Poor agricultural Prussia had its well-informed and trained and supervised midwives a century ago. There was and is no village in that country without one. We, however, have none that compare with them. We cling to our prejudices and our indolence. Forty years ago, the midwife question was discussed in a large New York medical society. One per cent. of the members present voted for instructing, and licensing and supervising them. And this very day the system under which they practice is slovenly and shiftless; no instruction is held out, no examination is held and the infant mortality of all classes, which you are bound to combat, is increased.

DR. WILLIAM H. WELCH, Baltimore: I believe this movement initiates one of the most important campaigns in preventive medicine in this country. In spite of the triteness of statistics, it is enough to arrest one's attention when one learns that in the state of Maryland over one-fifth of all the deaths of all ages occur under one year of age; that one-third of all the deaths occur under five years of age, the negro death rate making the percentage higher than in some other places. In the registration area of the country, the deaths under one year of age are a little less than one-fifth of all deaths of all ages, and about one-third under five years of age. One-ninth of all the deaths occur in the first three months of life. The crusade directed toward the prevention of infant mortality will yield the quickest results if waged against the so-called diarrheal and intestinal disorders, the acute respiratory diseases, bronchitis and pneumonia and the infections. Nurslings are better protected against infections than children who are artificially fed.

One of the most important functions of the association is the enlightenment of the public. Such education of the public is required to secure the enactment of the necessary laws from the legislatures and the appropriation of the funds needed to carry out preventive measures. Another function should be to stimulate better sanitary organization and administration throughout the country. With this end in view it should lend its whole force toward the organization of a national department of health and should stand for a strengthening of the activities of the federal government in public health work. A bureau of child hygiene would be an essential feature of such a federal department of health. A campaign in the interest of the better registration of births; the correlation of existing agencies now acting separately for the reduction of infant mortality; the stimulation of investigation; the formulation of a definite program of prevention, are also among the functions of the association. The direct benefits to be derived from the application of such measures would, of course, justify all efforts. The indirect benefits would be equally great.

(To be continued)

TRI-STATE MEDICAL ASSOCIATION OF MISSISSIPPI, ARKANSAS AND TENNESSEE

Twenty-Seventh Annual Meeting, held at Memphis, Tenn., Nov. 15-17, 1910

(*Concluded from page 2088*)

Diagnosis and Treatment of Kidney Calculi

DR. W. S. ANDERSON, Memphis: The Roentgen ray as a means of diagnosis marks the most important advance made in kidney and ureteral stone surgery in modern times. The clinical picture of a renal calculus often resembles very closely that observed in other pelvic and abdominal troubles. A careful study of the urine is of the greatest importance in cases of suspected stones. Among some of the commoner conditions liable to be mistaken for stones are: (1) tumors and tuberculosis of the kidney, ureter and bladder; (2) acute or chronic appendicitis; (3) movable or floating kidney, with kinking of the ureter; (4) pain on the right side caused by biliary and pancreatic calculi and intestinal obstruction; (5) psoas or perinephritic abscess.

If the kidney is found much diseased it is best to remove it at the time of the first operation rather than to attempt it later, for this is usually a difficult as well as a dangerous operation on account of many adhesions.

DISCUSSION

DR. E. M. HOLDER, Memphis: By means of the Roentgen ray with modern focusing devices one is able to get a clean-cut, clear, precise, well-defined picture of stone in the kidney or bladder. It is easier to take an *x*-ray of the kidney than of the bladder, for the reason that it is not surrounded by a bony wall.

DR. FRANK D. SMYTHE, Memphis: One condition has prevented me from making a correct diagnosis of stone in the kidney, and that is acute torsion of the pedicle of an ovarian cyst. A physician treated a case for days and regarded it as one of stone in the kidney. Examination of the urine revealed a stone in the kidney or ureter, and I was called to perform the operation. I regarded it as a case of peritonitis due to rupture of some organ producing infection, and advised immediate operation. On making an opening I found an ovarian cyst as large as a fetal head, with two or two and a half twists in the pedicle, with rupture of the blood-vessels, the cyst undergoing gangrene.

Pistol-Shot Wound Through the Head

DR. JOSEPH T. SEYMOUR, Whiteville, Tenn.: The patient was a boy, 15 years of age, who accidentally shot himself through the head while examining a pistol. The ball entered the head on the right side near the external angular process of the frontal bone, just above the supra-orbital ridge, passing through the skull and brain on a straight line, making its exit at the junction of the parietal, occipital and mastoid portions of the temporal bone. The opening at the point of exit was about the size of a nickel, being much larger than that at the point of entrance. Free drainage was established, and the patient made a good recovery.

DISCUSSION

DR. J. W. BARKSDALE, Winona, Miss.: Six or seven years ago, a man was shot with a 44-caliber Smith and Wesson pistol. The bullet passed through the right eye and through the entire thickness of the frontal lobe of the brain, emerging just anterior to the outer central fissure. I saw the man three minutes after the reception of the injury. There was no loss of consciousness, no paralysis; there was never any symptom suggestive of brain injury during the entire time, other than the physical fact of the injury. After recovery, which was uneventful, the patient had several convulsive seizures in the succeeding two or three years, dying four years later of tuberculosis.

DR. J. R. NELSON, Whiteville, Tenn.: One singular feature in connection with the case reported by Dr. Seymour is that the boy was rational all the time.

DR. JOHN DARRINGTON, Yazoo City, Miss.: It is the general practitioner who is called on to treat cases similar to the

one reported. Dr. Seymour's patient would have recovered without any complication whatever, except that the external opening was not sufficiently large in the first place to allow free drainage, but had to be enlarged later. It is remarkable how much traumatism the brain can stand. I saw a case in which the skull was crushed over an area an inch and a half in diameter, with pressure on the brain. The pressure was relieved, and the man recovered.

DR. J. N. MURRAY, Ripley, Miss.: A negro was kicked on the side of the head by a mule. Two or three tablespoonfuls of brain substance escaped. The boy had had epileptic convulsions previous to the injury. I trephined, removing a spicule of bone from the inner table an inch and a half long. The boy recovered from the operation and has not had an epileptic convulsion since.

Benign Tumors of the Uterus

DR. E. M. HOLDER, Memphis: It is conservatively estimated that over two-thirds of women having fibroid tumors of the uterus will die if not subjected to operation. The mortality of myomectomy and hysterectomy is between 2 and 10 per cent., depending on the gravity of the case, on the operator, and on the environment in which the operation is done. It seems a fair conclusion that the resort to early operation will effect a saving of 25 to 30 per cent. in mortality. The rule of practice should be to remove all fibroids which come under observation, unless there seems to be some good reason for temporizing, due either to the small size of the tumor, or to the advanced age or poor general health of the patient. Whenever the disease causes displacement, hemorrhage, pain or pressure sufficient to threaten damage to the general health, to the nervous system, or to the pelvic organs, an operation should be advised. When pregnancy is found to be complicated by a fibroid tumor, it is best to allow pregnancy to go to term as long as the mother's health is not seriously in danger. If, at the onset of labor, or shortly before, it seems certain that the tumor will cause obstruction to the birth of the child, Cesarean section, possibly followed by hysterectomy, should be performed. In cases in which the death of the child makes it necessary to interfere in the earlier months, abdominal section should be performed and an attempt made to enucleate the tumor. If under these circumstances myomectomy is found to be dangerous, hysterectomy should be performed.

DISCUSSION

DR. WILLIAM KRAUSS, Memphis: The terms "benign" and "malignant" are entirely clinical conceptions. They do not carry with them any distinct line of demarcation with reference to the histology or histogenesis of the neoplasm. Sometimes it is extremely difficult for the laboratory man to decide whether a given histologic structure is compatible with a benign clinical course, or whether it is going to mean that the course will be seriously malignant. What are the data for clinical malignancy? The tumor must show evidences of a tendency to spread into the surrounding tissues. There must be a tendency to local recurrence. There must be a tendency to metastasis. It must produce cachexia. These tumors are said to undergo sarcomatous or carcinomatous degeneration. The pathologist knows of no such degeneration. A fibroid tumor being mesoblastic, it can only undergo metablastic changes. It is not a degeneration.

DR. FRANK D. SMYTHE, Memphis: As the result of my observation and study of hundreds of cases of fibroid tumor I cannot regard a fibroid tumor or myoma of the uterus as a simple tumor. The location of a fibroid tumor rather than the size is the one thing that demands immediate operation. These tumors are of slow growth, but they grow steadily, and in the long-standing cases they are likely to produce serious remote disturbances. There should be little or no mortality attending the operation for the removal of fibroid tumors in the hands of good surgeons. The unavoidable deaths which occur in these cases following operation are always in patients who have had these tumors for a long time, whether they be large or not. Our object is to do the best we can for the patient, and from my own experience I believe the interests of the patient are best served in the main by hysterectomy, and hystero-salpingo-oöphorectomy when the tubes and ovaries are implicated, and these organs are implicated in 80 per cent. of the cases.

DR. W. T. BLACK, Memphis: In a woman approaching the menopause hysterectomy should be done in the class of cases under discussion because in 4 per cent. of the cases these tumors undergo malignancy. In a woman already pregnant myomectomy is indicated.

Prevention of Infantile Diarrhea

DR. A. G. JACOBS, Memphis: The prevention of diarrhea in babies depends on three factors: 1. Proper care should be taken of mother's milk. 2. If this fails, a wet-nurse should be procured. 3. If human milk cannot be secured, properly modified, pure uncontaminated cow's milk should be given. If this method of proceeding is followed, the death-rate from infantile diarrhea will dwindle down to one-fifth of its present proportions.

DISCUSSION

DR. WILLIAM KRAUSS, Memphis: If we are informed as to the methods of keeping the mother up to standard and supplying the infant, the problem is solved without going any further. It is not only a question of getting pure cow's milk as a substitute. The recognition of the proper proportion of the approximate principles in the milk is only one part of the problem. One-half of the protein of mothers' milk is in the form of a soluble albumin. The cow's protein is nearly all casein. This soluble albumin further has the advantage of having been prepared by the mother for emergencies further than the mere preservation of nutrition. Commercial milk, the best that is obtainable, produced in as clean a way as possible, and delivered within three hours, after being obtained under the most favorable circumstances, will contain probably fifty thousand bacteria per cubic centimeter. Grocery milk contains about ten times as many bacteria, and that is what we feed babies. Unless provision can be made whereby milk is delivered at the house containing a minimum number of bacteria, we are bound to have a high mortality among infants in the summer months, aside from the failure to protect the infant against the accidents which may occur in the household from disease and against which it would be protected by the normal protective bodies present in the mother's milk.

Treatment of Acute Middle-Ear Suppuration

DR. W. L. SIMPSON, Memphis: Early free antiseptic opening of the drum is to be recommended in acute middle-ear suppuration. If adenoids are present, do not wait until the suppuration has become chronic, hearing bad, etc., before their removal, but operate as soon as diagnosticated. The mastoid operation in acute middle-ear suppuration is not to be a life-saving procedure, but should be done early to save hearing, prevent chronic suppuration, brain or labyrinthine complications, etc.

DISCUSSION

DR. EUGENE ROSAMOND, Memphis: I would like to emphasize the importance of the general practitioner being equipped so as to be able to do paracentesis of the drum membrane in acute suppuration of the middle-ear. There is no excuse for a doctor not having a head-mirror, with a set of speculums. With an ordinary electric light, even with the bright light of a window in the daytime, with a good head-mirror, there is no trouble in seeing the ear-drum, if we are patient and careful enough and take time enough to cleanse the canal.

DR. W. S. ANDERSON, Memphis: I wish to emphasize the advantage of paracentesis of the drum membrane in cases of acute suppuration of the middle ear.

DR. B. L. BRANCH, Collierville, Tenn.: I use an ordinary pipette instead of an ear syringe, for the purpose of cleansing the ear, as one can control the force which is used in throwing the water into the ear to greater advantage than with the ordinary ear syringe, and it does not cause any pain.

Buboes and Their Treatment

DR. GEORGE R. LIVERMORE, Memphis: I prefer the Hayden operation for the relief of buboes. A man had had several incisions made on either side, was confined to bed for months

with suppurating inguinal adenitis, and yet following the Hayden operation he was able to be up in a week or ten days, the result being very gratifying.

DISCUSSION

DR. WILLIAM KRAUSS, Memphis: A patient with bubo had been under the care of a number of specialists without relief. The patient had induration and softening of the skin over the bubo, with a little reddening, and from time to time it became very painful. I thought it would be a good case for vaccine treatment. The patient received five injections of the combined vaccines, and he is now entirely well. It took this man just two weeks to get over a condition that had lasted for eight years.

Plaster of Paris as a Primary Dressing for Fractures

DR. J. W. BARKSDALE, Winona, Miss.: In using plaster as a primary dressing, a strip of ordinary bandage should be laid lengthwise along the limb, preferably along the front, between the padding and the plaster. Before hardening is complete, the plaster should be cut completely through over its entire length, this being rendered easy of accomplishment by cutting down on the roller bandage, which is pulled up into the cut plaster, thereby facilitating the maneuver. After being cut the roller bandage should be run firmly around the limb so as to keep the plaster snug and prevent splitting. The ends of the fingers and toes should be left exposed so as to permit of frequent inspection, and should the swelling create discomfort, or threaten gangrene, the roller is to be taken off and the plaster sprung so as to accommodate the increased bulk. As the swelling subsides the bandage can be drawn as tightly as desired, so that the enveloping material at all times keeps up an even pressure and secures coaptation. If the use of this material as a primary dressing has a drawback, I have thus far failed to discover it.

DISCUSSION

DR. JOHN L. JELKS, Memphis: When I put a plaster-of-Paris bandage as a primary dressing on a limb that has been fractured, I am very anxious about that case after the first day, or until I cut the bandage and inspect the limb. Plaster of Paris can be adjusted to the contour of the limb better than any other splint we employ.

DR. BATTLE MALONE, Memphis: The best results I have obtained is in cases in which the plaster splint has been put on at the earliest possible time after the accident. I do not agree to the use of plaster of Paris in fractures of the upper extremity. In fractures about the elbow-joint it is essential that we should have a dressing that can be removed, and the dressing should be put on in such a way that we can use passive motion, beginning it early, and keeping it up every day with massage.

Treatment of Failing Compensation in Cardiovascular Disease

DR. BRYCE W. FONTAINE, Memphis: To relieve the distressing symptoms we must decrease the work of the heart and increase its strength and restore to proper working order its functions. There is no single measure so important in the treatment of some patients as a temporary venesection. The presence of hydrothorax must never be overlooked. Paracentesis in this condition will give immediate relief. The specific effect of digitalis in the stimulation and restoration of tone to the heart-muscle has yet to be approached by any other drug. Its action is remarkable in that it stimulates specifically several different functions of the heart-muscle. It is indicated in every case of failing compensation, except, perhaps, a few cases of extreme mitral stenosis, and in cases of marked arteriosclerosis. It should be given in doses of one grain, every two hours, until its physiologic effect is noted, then discontinued and resumed in five to seven days, if dyspnea and edema are not diminished. In cases due to arteriosclerosis, and accompanied with high blood-pressure, vasodilators are necessary, and are often very efficiently used in conjunction with heart stimulants. Carefully regulated exercises and carbonated baths aid in the peripheral circulation and markedly increase the tone of the heart muscle. In our efforts to reduce the anasarca and to relieve dyspnea, we must not forget the beneficial effect of restful sleep.

DISCUSSION

DR. FRANK A. JONES, Memphis: With reference to the treatment of renal, cardiac, or cardiorenal lesions, the time has come when we are not so prone to administer too large quantities of digitalis and the large doses of salines as we formerly were, but I have come to realize in my individual work that we have no better agent than the Nauheim baths. The Nauheim bath can be improvised in any home where there is a bath-tub. As to the use of digitalis, there is but one valve lesion on which it has any marked effect, and that is mitral insufficiency, when failing compensation takes place.

A Form of Primary Nasal Diphtheria

DR. E. C. ELLETT, Memphis: In twelve years I have seen about two cases a year. The cases have all occurred in children, from 4 to 10 years of age. The children were not apparently sick, and were thought to be suffering from a cold. There is no elevation of temperature, no glandular involvement. Nosebleed is frequent from detachment of the membrane by blowing and picking, and excoriations of the upper lip and nostril are the rule. Inspection of the nostril shows a membrane, adherent to the septum most often and completely stopping the nose. At times the attempt to dislodge this will cause bleeding. It looks like a plug of muco-pus, but can be made out to be a membrane attached to the mucous membrane of the nose. Culture shows the characteristic bacilli. The treatment by antitoxin, even at the end of two or three weeks, is very effective. All my patients have recovered, and in no case has any postdiphtheritic paralysis occurred. If antitoxin is given at once in suspicious cases the patient is well before the culture can be made, and I think that we should follow this plan and not wait.

DISCUSSION

DR. RICHMOND MCKINNEY, Memphis: I should like to emphasize the fact that this disease is mildly contagious. I have seen two or three of these cases a year. In no case did the disease extend to the fauces. One patient with a malignant type was cured in forty-eight hours after the use of antitoxin. In this case we obtained pure cultures of the Klebs-Loeffler bacillus.

DR. WILLIAM KRAUSS, Memphis: Because the little patient is not very ill the condition is overlooked, but as soon as the organisms are transplanted into another soil, they may give rise to more virulent diphtheria and an outbreak in the family.

DR. W. L. SIMPSON, Memphis: The cases of diphtheria of the nose I have seen have tallied with the description given. The patient's nose is stopped up either on one side or both, and there is usually some bleeding from the nose, although the child is up and around the house and able to play. I think smaller doses of antitoxin than those usually given in the ordinary case of diphtheria of the throat would be followed by equally as good results as the larger doses.

DR. W. F. CLARY, Memphis: The first case of purely nasal diphtheria I ever saw was about four years ago. I investigated that case very carefully and had cultures made immediately, which showed the Klebs-Loeffler bacillus, and the use of antitoxin cleared up the case in twenty-four or forty-eight hours. In this case I noticed a free, ichorous discharge and excoriation of the upper lip. Since then I have seen about one case a year.

The following papers were also read: "The Trials and Tribulations of Skin-Grafting," Dr. R. F. Mason, Memphis; "Gall-Stones with the Complication of Pancreatitis," Dr. W. F. Clary, Memphis; "Report of a Case of Typhoid Fever with Cholecystitis and Cholangeitis," Dr. John O. Gurney, Tupelo, Miss.; "Treatment of Typhoid," Dr. M. S. Pollard, Thornton, Miss.; "Was Hysterectomy Indicated?" Drs. W. D. Ray and S. A. Brevard, Memphis; "A Case Having Symptoms of Abscess of the Temporal Lobe of the Brain," Dr. J. R. Nelson, Whiteville, Tenn.; "The Doctor's Privilege and His Justification," Dr. W. L. Howard, Greenville, Miss.; "Aneurisms of Abdominal Aorta," Dr. W. T. Price, Memphis.

COLLEGE OF PHYSICIANS OF PHILADELPHIA

Regular Meeting, Held Nov. 2, 1910

The President, DR. GEORGE E. DE SCHWEINITZ, in the Chair

Nervous Disturbances Following Surgical Operations and Anesthesias

DR. S. WEIR MITCHELL: In a case of grave hysteria following operation we must consider the patient as a loaded gun, and that the surgeon merely pulls the trigger. The proper man might know that the gun is loaded. This raises the question whether it is not desirable in many cases to prepare the patient for the operation more often than our surgical brothers seem to think is needed. Not only the risks of death are to be considered, but the possibility of increasing a preceding condition of disease. Many physicians have felt that there is necessity for more strictly dealing with the before and after of surgical cases. Sir James Paget never did a grave operation on the bladder without putting the patient under a fortnight of milk treatment. I am tempted to say that no operation ought to be done without obedience to the rule in St. Bartholomew's Hospital in London, that no surgeon should ever dare to operate on a patient except after consultation with two physicians.

Postoperative Psychoses

DR. JAMES G. MUMFORD, Boston: The frequency of postoperative psychoses is shown by the careful study of cases seven and nine years after operation, taken from consecutive reports in hospital records. Long-continued mental and psychic disturbances following operations are due to demonstrable microscopic changes in certain nerve cells of the brain.

The Diagnosis of the Postoperative Psychoses

DR. J. CHALMERS DACOSTA: All sorts of mental disturbances may follow a surgical operation. It is certain that genuine insanity may arise after an operation, though it is rare. Postoperative insanity is more common in women than in men and less common in children than in adults. Contributory causes are pain, insomnia and shock. In all cases of postoperative insanity there is predisposition, hereditary or acquired. A normal, stable brain will probably never go insane after operation unless that operation attack the brain, testicles, or ovaries. The anesthetic is usually the exciting cause in insanity coming on immediately after the operation. The commonest type of postoperative insanity is confusional insanity. Fear and worry are two important causal factors. Anteoperation fear may become a postoperative phobia; yet, I do not believe that fear or sudden fright is usually responsible for postoperative insanity. Most people go to the operating room with reasonable calmness; many with heroic courage, and some with satisfaction at the prospect. Delirium may be mistaken for insanity, and is far more common, from intoxication or infection, than organic brain disease. The entire subject of postoperative psychoses is one of extreme interest and importance.

Postoperative Insanities

DR. EDWARD N. BRUSH, Towson, Md.: It may be assumed that there is no such thing as postoperative insanity *per se*. Insanity follows operations sometimes, but it manifests itself in various forms. The personal and family history in a given case are so difficult to obtain that we are not at all sure how far mental instability plays a part. This naturally arises from the lack of clinical experience in psychiatry on the part of many observers of these cases. Quite a large proportion of postoperative insanities are due to sepsis, not necessarily from faulty technic on the part of the surgeon. I have knowledge of a woman of unstable mental equilibrium who became insane after the administration of gas for the extraction of teeth and who remained insane for several months. Before we can study intelligently postoperative mental disturbances we must have the histories of our patients carefully recorded. From the lack of this knowledge the post-operative insanity is often erroneously attributed to the operation when in reality the condition may have been present preceding operation.

DISCUSSION

DR. HOWARD A. KELLY, Baltimore: Postoperative psychoses I believe are due to the mental shock of the operation *per se* and not necessarily to any particular kind of operation. The duration and severity of the procedure are minor factors. The condition is due rather to the attitude of intense expectancy, even of dread, inspired by a new and untried force with which the patient feels she has to cope. It is important that the physician should be able to inspire the patient with confidence sufficiently to enable her to feel that he is a moral support. The conditions after operation should be as natural as possible and the patient should be out in the sunlight upon the porch when practicable. Treatment should be prophylactic in determining the predisposing factors. The utmost care should be taken to minimize the unpleasantness of the operation.

DR. EDWARD MARTIN: I think every surgeon feels that when Dr. Mitchell said "the surgeon pulled the trigger" he practically covered the whole subject. We do not recognize that a perfectly healthy individual in good mental health can be made insane by any form of surgical intervention practiced at the present day. We do recognize certain postoperative mental disturbances as rather common. We see the type of depression which we call "hospitalism" of which the patient is cured by being sent out of the hospital. We see the type of homesickness and again the patient is cured by being sent home. We do not see the type in which the patient is depressed by the thought of loss of organs, and broods on a physical deformity.

DR. FRANCIS X. DERCUM: The great rôle played by neuropathy in postoperative mental disturbances should discourage operation in such subjects, except under circumstances of grave necessity.

DR. JOHN K. MITCHELL: Of 344 cases of general mental or nervous disturbances there were only thirty-one cases which could be called postoperative. There seemed to be no relation between the severity of the operation and the severity of the mental disturbance. Fright, I feel sure, plays a larger part than is generally attributed to it. There are good surgical reasons for getting a patient out of bed as soon as possible, but these troubles would be less frequent if the period of rest in bed were increased and general treatment instituted. Should the question of surgical treatment of a neurasthenic patient arise, much more than ordinary care must be observed in deciding on operation.

DR. CHARLES K. MILLS: Of many serious cranial operations under my observation I can recall perhaps only two or three in which insanity has followed the procedure. There have been very few also following operations on the spinal cord. In my experience these insanities have occurred in women of a certain temperament and of a certain predisposition rather than in the neurasthenic type.

DR. S. WEIR MITCHELL: The question arises concerning the result of the use of local anesthesia which has become so fashionable in some circles. I hear of abdominal operations done under local anesthesia. I think to have the interior of one's abdomen exposed to one's own view would tend as much as possible to produce some of the insanities of which we have been speaking. It is a fact that occasionally insanities have been cured by grave operations. One such case was an amputation. Another was an attempt on a man's part to cut his throat. The man bled almost to the point of death, but his life was saved, and he recovered from his insanity. I do not recommend the method. I have seen many cases in which sudden delirium or sudden delusion followed instantly on a gunshot wound. One case was that of a colonel who, after being shot, cried to his men to run, that the rebels were on them. He fell on his face, was delirious for some time, but after amputation of his arm, he returned to the regiment that evening. Another case was that of an officer in the Mexican War, a man of well-known courage. A ball struck his heel; he limped up and down the line calling to his men to run, that everybody was going to die, and for hours he was in a condition of the wildest maniacal excitement. This passed away within forty-eight hours. He asked for a court of inquiry which, of course, was denied a man so well known for courage.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Boston Medical and Surgical Journal

November 24

1 Technic of Operations for Stone in the Ureter. H. Cabot, Boston.
2 *Staining Capsulated Bacteria in Body Fluids. W. H. Smith, Boston.
3 Cancer of the Scrotum. R. M. Green, Boston.
4 Technic of Arthrotomy. C. F. Painter and A. P. Cornwall, Boston.

2. Staining Capsulated Bacteria.—The following method of staining capsulated bacteria in body fluids has been found during the past two years, in Smith's hands, to yield more uniform results than any other:

1. Make a thin smear from fresh sputum, lung, pleural or pericardial exudate.
2. Pass through flame.
3. Cover with 10 per cent. aqueous solution of phosphomolybdic acid.
4. Wash in water.

If the microorganism is Gram-staining like the pneumococcus or *streptococcus mucosus capsulatus*, stain with:

5. Aniline oil gentian violet, steaming one-quarter to one-half minute.
6. Wash in water.
7. Treat with Gram's solution of iodin, steam one-quarter to one-half minute.
8. Decolorize with 95 per cent. alcohol.
9. Wash in water.
10. Stain with 6 per cent. aqueous solution of eosin (Grübler's w. g.) one-half to one minute, warming gently.
11. Wash in water.
12. Wash in absolute alcohol.
13. Clear in xylol and mount in Canada balsam. The capsule will be found to be distinct, clear cut, eosin-stained, about the Gram-stained microorganism.

If the microorganism is Gram-decolorizing, after covering the smear with phosphomolybdic acid and washing,

1. Stain with 6 per cent. aqueous solution of eosin from one-half to one minute, warming gently.
2. Wash in water.
3. Counter stain with Loeffler's methylene blue from one-quarter to one-half minute, warming gently.
4. Wash in absolute alcohol.
5. Clear in xylol and mount in Canada balsam.

The capsule will appear eosin-stained about the blue-stained microorganism.

Medical Record, New York

November 26

5 The United States Naval Medical School. H. G. Beyer, United States Navy.
6 Philosophic Anatomy of the Liver. E. Souchon, New Orleans.
7 Chemical Problems in Diabetes. A. Magnus-Levy, Berlin.
8 Tuberculin Treatment in Advanced Tuberculosis. F. A. Deal, New York.
9 *Preliminary Examination of Children at Dispensary as Means of Protection Against Contagious Diseases. S. Welt-Kakels, New York.
10 Practical Value of Positive Complement-Fixation Test in Syphilis. G. W. Vandegrift, New York.

9. Examination of Children at the Dispensary.—Kakels describes the method of preliminary examination of patients at the Mount Sinai Hospital which has been in use for two and a half years past. This is the first dispensary in the city which has initiated such a system, and the number of its patients is very large, indeed. As the patients pass in they go between rails and are sent by the orderly to a physician who examines the throat and skin of each child. If a contagious disease is detected the child is taken to an isolation room. Non-contagious diseases that need immediate treatment may also be detected. There is at present in all dispensaries a great lack of care in handling contagious diseases, and as at present conducted they aid in disseminating them. The dangers would be much lessened by a preliminary examination of all attending children, and as a sanitary safeguard it should be established in all institutions. Kakels concludes by stating:

1. There is at the present time an evident lack of prophylaxis in handling contagious cases at the dispensary.
2. As at present conducted, dispensaries contribute to the dissemination of infectious diseases among the poor by contact infection in the common waiting-room.
3. If not entirely eliminated, the danger of exposure is lessened by the preliminary inspection of children, a prophylactic measure which aims at an early detection and exclusion of contagious cases and "suspects" before entering the common waiting-room.
4. Preliminary examination of children has been conducted at the Mount Sinai Dispensary since April, 1907, with satisfactory results.
5. Its establishment in similar institutions is required as a sanitary safeguard and on the ground of public economy.

New York Medical Journal

November 26

11 Carbon Compounds of Arsenic in Treatment of Syphilis. S. C. Runnels, Indianapolis.
12 Chemistry of Cancer. S. P. Beebe, New York.
13 Hot-Air Treatment of Phagedenic Chancroid and Chancre. E. W. Ruggles, Rochester, N. Y.
14 *Introduction of Large Quantities of Gases Into the Circulatory Apparatus. C. B. Fitzpatrick and J. P. Atkinson, New York.
15 Clinical Statistics. I. S. Wile, New York.
16 Treatment of Symptoms in Hospitals. B. Robinson, New York.
17 An Improved Operating and Observation Endoscope for the Anterior Urethra. J. F. McCarthy, New York.
18 Acute Myelogenic Leukemia. J. A. Wolfer, Chicago.
19 Steps Toward the Prevention of Postoperative Exudates. W. E. Dicken, Oklahoma City.

14. Introduction of Gas Into Blood.—According to the general experience of investigators on this subject, a dose (from 60 to 100 c.c.) of air given at one time, constitutes the usual fatal dose, causing death almost instantly. Ninety-five cubic centimeters intrajugularly in Fitzpatrick's and Atkinson's experiments in untreated normal dogs always caused death instantly. After a number of experiments with the previous introduction of glycerin or olive oil into the femoral vein, to prevent foaming or churning after introduction of large quantities of air, they have found that the use of these substances is not necessary and they have obtained as good results without the use of olive oil or glycerin. The intravenous administration of 3.5 c.c. of a 50 per cent. solution of glycerin in normal salt solution in a 35-pound dog was followed by the rapid introduction of 28 c.c. of air (femoral) without any harmful symptoms or any trace of a kymographic disturbance. The next experiment, the dog weighing 10 pounds, was made to determine the toxic dose of glycerin when injected intravenously. The introduction of 7 c.c. of a 50 per cent. solution of glycerin in normal salt solution caused an immediate and marked drop followed by a slight rise in the arterial pressure. This was followed by another equally short drop in pressure, with heart paralysis. Respiration continued for a time and quite suddenly ceased. They believed at first that these experiments would be explained by supposing that an increased viscosity of the blood was acquired through the introduction of glycerin and olive oil, that these substances gave an increased tolerance for the presence of air in the blood-stream or that the oil acted on the blood mixed with air as oil on the breaking waves of the stormy sea, in that it prevented the bubbles or waves from breaking, and thus gave the heart a solid medium to compress on. But the experiments on the untreated dogs show these previous injections of glycerin or oil to be unnecessary. It would, moreover, appear to be probable that small amounts of air are absorbed in the blood-stream before it reaches the heart. The authors believe that they have found evidence that the adrenals play a very important rôle in enabling the lungs and the circulatory apparatus to eliminate the air introduced. It is apparent, moreover, that if the air is eliminated by this means it is possible that it is carried in by the same means.

Lancet-Clinic, Cincinnati

November 26

20 Surgery of Musculospiral Paralysis. A. H. Barkley, Lexington, Ky.
21 Thoracic Surgery. B. M. Ricketts, Cincinnati.

Virginia Medical Semi-Monthly, Richmond

November 11

22 Man's Inhumanity to Man. E. T. Brady, Abingdon, Va.
23 Diet in Tuberculosis. L. S. Peters, Silver City, N. M.
24 Diagnosis of Tubal Abortion and Rupture. C. E. Congdon, Buffalo, N. Y.
25 Tumors of the Scrotum. O. L. Suggett, St. Louis.
26 Treatment of Wounds—Surgical Dressings and Applications. L. Sexton, New Orleans.
27 History of Electrocution in the State of Virginia. C. V. Carrington, Richmond.

Denver Medical Times and Utah Medical Journal, Denver

November

28 Studies of Feces. The Use of Carmin as an Indicator in Test-Meals. C. D. Spivak, Denver.
29 The Owen Bill and Its Opponents. S. A. Knopf, New York.
30 Bryonin. H. H. Redfield, Chicago.
31 Stammering and Its Cure. E. D. Feldman, New York.
32 Life of Jenner and His Work in Relation to the Public and the Physician. W. T. Hasler, Lehi, Utah.
33 Rocky-Mountain Spotted Fever. W. Waugh.

University of Pennsylvania Medical Bulletin

November

34 *Sphygmographic Studies from a Case of Valvular Heart Disease. G. W. Norris, Philadelphia.
35 *New Operation for Adolescent Hallux Valgus. J. K. Young, Philadelphia.
36 *Auscultatory Method of Determining Blood Pressure. E. H. Goodman and A. A. Howell, Philadelphia.
37 Experimental Investigation on the Inter-Relation of Some Bacterial and Body Enzymes, as Well as of Their Respective Antibodies. W. L. Croll, Philadelphia.
38 New Filarial Species Found in *Heloderma Suspectum*, and Its Larvæ in a Tick Parasite on the Gila Monster. A. J. Smith, Philadelphia.
39 The Medical Side of Benjamin Franklin. W. Pepper, Philadelphia.

34. Valvular Heart Disease.—This was an ordinary case of double mitral disease of many years' duration, in an individual who subsequently became insane, with numerous attacks of broken compensation, but there are a number of interesting facts connected with the case. First, it was rather curious to note the way in which insanity returned and became progressively worse hand in hand with a most remarkable improvement of the patient's cardiac action and general physical condition. Secondly, the pulse tracings demonstrate graphically the manner in which digitalis slows the pulse and increases the pulse volume, and how it changes the hopeless irregular pulse of a nodal rhythm into an orderly, regular, and continuous bigeminus form; and how, when it is pushed still further, it causes the second beat of each bigeminus to drop out in the peripheral arteries entirely, thus producing a false bradycardia. When, however, the drug is continued beyond this point its effects are not so good. A tracing taken five days after digitalis had been withdrawn, shows the persistent effect of the drug in the latter two-thirds of the tracing, in which the heart has suddenly and without apparent cause changed to the bigeminal rhythm. This is also shown in a later tracing in which a bigeminus which was still present six days after the withdrawal of digitalis suddenly disappeared during a period of voluntary apnea. The effect of digitalis in increasing tonicity—diminishing dilatation—is shown in a tracing in which the hitherto systolic retraction of the apex beat is changed into a systolic elevation. This change went hand in hand with a marked amelioration in the patient's condition. The action of the digitalis in producing bigeminus is not an accidental one. It occurred in the present case on each occasion when this drug was administered in sufficiently long and large dosage; and disappeared each time that digitalis was withdrawn long enough to allow its physiologic effect to pass off.

35. Adolescent Hallux Valgus.—In the preparation of this paper 134 fresh skeletons of feet were examined by Young, to determine the relative frequency of this affection, as well as its etiology. The condition was found to exist in seven feet, and in these was found a peculiar change in the articular surfaces of the first tarso-metatarsal joint, which appears to be characteristic, and in some degree causative. It was also noted that there is often present in the first tarso-metatarsal joint in subjects afflicted with this deformity, a wedge-shaped supernumerary bone similar to, or related to, the inter-metatarseum described by Dwight. Young proposes an operation for its relief. The foot having been carefully prepared and rendered aseptic, a curvilinear incision, 3 inches long from the instep, the center of which is over the first metatarsal phalangeal articulation; the flexor hallucis tendon is retracted to the inner side, the joint is exposed by a Farrabouf periosteotome, and the triangular piece of bone is removed by means of a chisel. As there is one difficulty in recognizing the articulation, this is best accomplished by using a steel meter measure or a wooden tongue compressor which has been marked from the *x*-rays, the distance being taken from the distal end of the first metatarsal bone to the joint. The removal of this triangular piece of bone leaves a space, which is corrected by placing the foot in a marked equino-varus position. A triangular piece of gauze is placed between the first and second toes and a pad is placed beneath the arch of the foot and a small straight wooden splint is placed along the inner side of the foot over the metatarsal phalangeal joint. The foot is secured in this position in plaster-of-Paris dressing and maintained for three months. In adults, the writer recommends the Wilson, Riverden, or Riedl's operation, according to the severity of the cases.

36. Abstracted in THE JOURNAL, Oct. 29, 1910, p. 1581.

Dominion Medical Monthly, Toronto

November

40 Colon Bacillus Infection of Genito-Urinary Tract in Infancy. A. L. Kendall, Vancouver, B. C.
41 Tumor of the Brain. G. Chambers and G. A. Bingham, Toronto.
42 Medical Thoughts, Fads, Fancies and Foibles. J. S. Sprague, Perth, Ont.

Journal of the Delaware State Medical Society, Wilmington

November

43 General Treatment of Tuberculosis. P. R. Smith, Wilmington.

Cleveland Medical Journal

November

44 *Special Field of Neurologic Surgery; Five Years Later. H. Cushing, Baltimore.
45 *Epidemic of Diphtheria in a Convalescent Home for Children. R. G. Perkins and A. F. Furrer, Cleveland.
46 Cerebrospinal Meningitis, Especially Diagnosis and Treatment. L. W. Ladd, Cleveland.
47 Sero-Cyto-Diagnosis and Its Importance in Diagnosis of the Various Insanities. J. D. O'Brien and O. D. Tatje, Massillon, Ohio.
48 *Malaria in Early Infancy. F. Beckel, Cleveland.

44. Also published in the *Bulletin of the Johns Hopkins Hospital*, November, 1910.

45. Diphtheria Epidemic.—The study of this epidemic by Perkins and Furrer emphasizes the importance of administering a prophylactic dose of antitoxin to all children on admission to a hospital; the necessity and value of taking cultures and making bacteriologic examinations; and the advisability of taking cultures from the nose as well as from the throat before discharging patients from quarantine. The nurse in attendance on a diphtheria case should not be discharged from quarantine until negative cultures have been obtained. Isolation, quarantine, disinfection and fumigation are found to be of little or no value in controlling an epidemic until a systematic search is made for latent infections among inmates.

48. Malaria in Early Infancy.—Beckel's patient was only 10 weeks old. He was a first-born child, had been breast-fed entirely and had been well except for the present illness. This began three weeks before, and had been marked by symptoms of feverishness, restlessness, quickened breathing, lessened desire for food, occasional vomiting and increased frequency of bowel movements. The infant was well-developed and well-nourished. His appearance was remarkable because of the extreme pallor; the normal skin tint was replaced by a lemon-yellow color and the visible mucous membranes were almost white. The breathing was from 50 to 60 times a minute with slight expiratory grunting and some movement of the alæ nasi. There was no skin rash. The throat and mouth were negative. The chest examination was negative. The spleen was easily palpable and hard, and extended 3 cm. below the edge of the ribs. The liver was 3 cm. below the costal margin. There was no visible peristalsis, and the abdomen was not distended. Two small glands were felt in the posterior cervical region and one in the left axilla. The stool was of an orange-yellow color. The blood examination showed: hemoglobin, 30 per cent.; white blood-cells, 14,800; red cells, 1,600,000. Examination of stained specimens showed a very noticeable variation of size of the red corpuscles with poikilocytosis and polychromatophilia and nucleated red cells in large numbers, while the presence in many corpuscles of bluish-gray, pigmented, slightly irregular bodies solved at once the question of diagnosis. Hyaline forms of the parasite, early pigmented forms, a few filling from one-third to three-quarters of the infected red cell, pre-segmenting and segmenting forms numerous enough to be easily found were all present. Both father and mother of

the infant were found to have suffered from malaria, the father at the age of 15, the mother when 12 years old, but to have been free from symptoms for some years. The spleen in each of the parents was just palpable on deep inspiration. The child received quinin bisulphate in solution, 1½ grains, three times a day; syrup of the iodid of iron in 2-drop doses, three times a day, was prescribed at the second visit, and was continued to the end of the second month. The child recovered.

Journal of the Minnesota State Medical Association and the Northwestern Lancet, Minneapolis

November 15

49 Transactions of the Forty-Second Annual Meeting of the Minnesota State Medical Association.

Colorado Medicine, Denver

November

50 Dicephalus Dibrachius. W. W. Reed, Boulder, Colo.
51 Medical Nihilism. J. E. Peairs, Pueblo, Colo.
52 Atrophy of the Liver, Atrophic Cirrhosis of Spleen and Pancreas, and Fatty Degeneration of the Kidneys. H. G. Garwood, Denver.

Vermont Medical Monthly, Burlington

November

53 General Principles of Serotherapy. D. Marvin, Essex Junction.
54 Lumbar Puncture. C. H. Beecher, Burlington.

Archives of Pediatrics, New York

November

55 *Pyelocystitis in Infancy. E. B. Friedenwald, Baltimore.
56 Colon Infections of the Urinary Tract in Children. L. Porter and E. C. Fleischner, San Francisco.
57 *Orthopedic Treatment of Spinal Paralysis. F. Lange, Munich, Germany.
58 Clinical Significance of Lack of Development of the Pyramidal Tract in Early Infancy. B. K. Rachford, Cincinnati.
59 *Nitrogen Metabolism in Healthy (Artificially-Fed) Infants. B. R. Hoobler, New York.

55. **Pyelocystitis in Infancy.**—Friedenwald's study is based on a series of eighty cases, derived from a large foundling hospital; it is made up largely of young infants, many of whom suffer from nutritional disorders, and among whom infections, particularly influenza, are very common. In this series he found fifty-eight females and twenty-two males, tending to show that the disease is much more common among males than previously believed. The youngest child was 11 days, the oldest 22 months. Under one month there were three; from one to three months, twenty-five; from three to six months, twenty-two; from six to nine months, fourteen; from nine to twelve months, ten; and over one year, six patients. Fifty-four cases occurred between the first of December and the first of June. The months of May, February and March had respectively thirteen, eleven and ten patients, while June had none and October and November each three. The colon bacillus was demonstrated in a number of this series. The proteus bacillus was found twice, the *B. lactis acrogenes* once. During the year ending Feb. 1, 1910, there were twenty-two cases of pyelocystitis; one-half of these occurred in the months of November, December and January, during a severe epidemic of grippe. Fifty-nine of the cases were directly preceded by either some infection or an acute nutritional disorder, while only seven occurred under observation which were not preceded by a previous serious disorder. The fourteen remaining patients entered with this condition. Twenty-one cases were preceded by some infection of the respiratory apparatus, of which seven were influenza and two diphtheria; twelve others by otitis media, seven by alimentary intoxication, six by septic conditions, five by enteritis follicularis, four by stomatitis, two by active syphilis with profuse eruption, and one each by tuberculosis and vaginitis. Of twenty necropsies the kidney pelvices and bladder both showed pathologic changes in fifteen instances; three times the pelvices were alone involved, once the bladder alone, and in one instance there were no pathologic findings in the urinary apparatus, although the child had had pyuria six weeks previous to death. That the lesion can be a simple catarrhal inflammation which quickly heals was shown in a case in which the patient, developing a pyelocystitis after an alimentary intoxication and dying seven weeks later of acute tuberculosis, gave no pathologic findings in either pelvices or bladder.

57. Abstracted in The Journal, July 2, 1910, p. 48.

59. **Nitrogen Metabolism in Healthy Infants.**—The study of nitrogen metabolism, which Hoobler presents, is a portion of a larger metabolism problem which involved the determination of the nitrogen, fat, sulphur, magnesium and calcium in the food, urine and feces covering a nine-day period, divided into three periods of three days each. The child used for this study was a healthy, robust, vigorous infant of nine months, fed from birth on modified cow's milk, who was admitted to the hospital for operation for the closure of harelip. The child was fed on three different cow's milk mixtures. These involved the use of (certified) whole milk, fat-free milk and 16 per cent. cream, all of which were secured from the Walker-Gordon milk laboratory, and when modified represented a low fat, medium fat and a high fat formula. Specimens of each of the three types of milk were carefully analyzed. The child was kept on a definite formula at least two days before being put in the metabolic frame, and was kept three days continuously in the frame and given the same formula, so that the feedings were of five days' duration, while the metabolism experiment covered the last three days of the period. After each three-day period in the frame the child was given a rest for about ten days before being put into the frame again, during which time he was fed on Walker-Gordon certified whole milk. This period of rest gave the child ample time to recover his normal activities before going into the frame again. The urine was collected daily and the total nitrogen, urea, ammonia and kreatinin determinations were made the same day, as were also the tests for acetone, diacetic acid and beta-oxybutyric acid and total acidity. The urine was then placed on ice until the salts were analyzed. The feces were collected in daily quantities, except in two instances, when forty-eight-hour periods were collected, were dried over water bath, pulverized and passed twice through a No. 40 sieve and stored in glass containers until examined. The methods used for the nitrogen determinations with which this paper deals were the Kjeldahl method for total nitrogen, Folin's method for ammonia, Folin's method for kreatinin and Folin's method for urea. Controls were made and repeated when necessary. It was found that nitrogen is absorbed exceedingly well by healthy infants fed on cow's milk mixtures. The per cent. of absorption at varying ages is about the same, even though the intake of nitrogen per kilo differs greatly. Nitrogen absorption is carried on equally well under low, medium and high-fat feeding. The percentage of absorption varies little from day to day. The proportion of the food nitrogen which is retained is about one-third. The percentage retained is about the same for the three ages discussed. Retention takes place in about the same percentage, whether fed on low, medium or high fat. Percentage nitrogen retained remains about the same, whether fed on low, medium or high proteid. In high proteid feeding a larger amount of nitrogen is absorbed and eliminated, thus causing more "work" to be performed by the infant than on a lower proteid feeding. Body weight may diminish under a fair nitrogen retention. Nitrogen is largely eliminated through the urine. Considerably more than half of the nitrogen ingested is excreted in the urine. A very small quantity is found in the feces. The excretion of ammonia nitrogen was higher on "high-fat" mixtures than on "low-fat" mixtures.

Therapeutic Gazette, Detroit

November

60 Congenital Dislocation of the Hip. H. A. Wilson, Philadelphia.
61 Treatment of Typhoid Fever. B. N. Ghosh, Calcutta.
62 Effects of Hashish Not Due to Cannabis Indica. M. V. Ball, Warren, Va.
63 Rational Treatment of Acute Glaucoma—Iridectomy Empirical. A. Bray, Philadelphia.
64 Treatment of Fractures of the Shaft of the Femur—End-Results. W. L. Estes, South Bethlehem, Pa.

West Virginia Medical Journal, Wheeling

November

65 The Betterment of the Medical Profession. T. W. Moore, Huntington.
66 Transverse Presentations. G. B. Miller, Washington, D. C.
67 Membraneous Croup or Laryngeal Diphtheria. R. U. Drinkard, Wheeling.
68 Typhoid. G. C. Rodgers, Elkins.

Iowa Medical Journal, Des Moines

November

69 Cerebral Decompression. L. W. Littig, Davenport.
70 Extra-Gastric Conditions Producing Gastric Symptoms. D. S. Fairchild, Clinton.
71 Differential Diagnosis of Pathologic Conditions in the Upper Abdomen. A. L. Wright, Carroll.
72 Surgical Conditions of the Right Lower Quadrant. G. E. Decker, Davenport.
73 *Acute Epidemic Poliomyelitis. C. E. Dakin, Mason City.

73. Acute Epidemic Poliomyelitis.—The author discusses in detail the symptomatology, diagnosis and treatment of acute epidemic poliomyelitis, including abortive measures. There is no apparent reason, he says, why inflammation should not yield to local depletent measures here as well as elsewhere. This can be accomplished in several ways, the first and most obvious being by thorough catharsis. This is best done with calomel and castor oil. Castor oil is the most efficient agent, aided by enemas containing glycerin and turpentine. Local counter-irritation may have some effect on the congestion and in connection with hot or cold packs should not be neglected. Among the drugs which act to reduce the spinal circulation the most efficient is gelsemium, which should be given in small but frequent doses, until the effect is marked, and continued until the motor excitation is controlled; in severe cases it may even be given until the eyelids droop and sight is perceptibly affected. The fact that after the administration of hexamethylenamin it may be demonstrated in the spinal fluid has led to its use in this disease. The only patient in this series who received it died within a few hours after its first administration and there has been no opportunity since to test it, but on theoretical grounds it would seem to be valuable.

Journal of the Tennessee State Medical Association, Nashville

November

74 A Leaf from the Catechism of Pediatrics. H. Hawkins, Jackson.
75 Ophthalmia Neonatorum, or Inflammation of the Eyes of the New-Born Infant. J. L. Minor, Memphis.
76 Purulent Ophthalmia. O. Dulaney, Dyersburg.
77 Transduodenal Choledochotomy for Removal of Stones from the Diverticulum and Distal Extremity of the Common Duct. F. D. Smythe, Memphis.
78 Suggested Changes in Standards in Medical Education. B. F. Turner, Memphis.
79 Treatment of Bronchopneumonia. E. W. Mabry, Meagsville.

Old Dominion Journal of Medicine and Surgery, Richmond, Va.

November

80 Present Status of Abdominal Cesarean Section. G. B. Johnston, Richmond.
81 Intrathoracic Tumor. W. S. Thayer, Baltimore.
82 Diagnosis of Duodenal Ulcer with Indications for Operative Treatment. J. H. Gibbon, Philadelphia.
83 Poliomyelitis from the Orthopedic Viewpoint. W. P. Mathews, Richmond.
84 The Problem of Visceroptosis. G. Baughman, Richmond.

Northwest Medicine, Seattle, Wash.

November

85 Principles in the Etiology and Treatment of Disease. J. M. Taylor, Boise, Idaho.
86 Spinal Anesthesia. C. C. Snyder, Salt Lake City.
87 Anterior Poliomyelitis in Idaho. G. E. Hyde, Rexburg, Idaho.
88 Diagnosis and Treatment of Hip-Joint Conditions. C. F. Eikenbary, Spokane, Wash.
89 *Treatment of Lateral and Posterior Curvatures of the Spine by Graded Forcible Correction. E. A. Rich, Tacoma, Wash.
90 Some Mistaken Diagnoses. N. W. Jones, Portland, Ore.
91 Tuberculosis of the Larynx. A. E. Burns, Seattle, Wash.

89. Curvatures of the Spine.—Seeking a means of lateral suspension Rich constructed a frame, in which he can suspend a patient in a horizontal position, and is enabled to apply a plaster corset. The main upper shaft of the frame is provided with several sliding collars, each bearing pulleys and rope. A platform is provided for preparation at a lower level. Anyone could extemporize the affair with several pulleys attached to the ceiling. The patient when stripped in preparation is laced on the platform on his side, having the side of the greatest convexity down. With a piece of canvas four or five inches wide the body is raised from the platform with the pull against the main spinal curve. With the body weight thus suspended on a fixed point, that part above the fulcrum and that below have enough potential from their own weight more or less to correct the deformity. The point of the maximum curve is marked and the body suspended from that point. When the spinal curve is low dorsal, the head will have to be likewise supported. Thus, when all is in readiness and the suspension is enacted, most of the body weight will be pendant laterally at the maximum point of the curve. By thus supporting the weight of the torso in these hammocks the following things are accomplished: 1. There is correction of rotation from pressure on the ribs. 2. The wide diameter of the chest on the side of the curve, known as the "rotation," is narrowed by being compressed into the angle and two sides of V-sling. 3. After one or two hours of suspension, while the muscles are being overcome, there is evolved enough potential from the weight of the parts of the torso above and below the point of suspension to enforce powerful correction of the deviation of the spinal column. 4. The torso, without hampering appliances, is forced into a position of correction suitable for the application of a retentive apparatus. For several days Rich suspends the patient for an hour or two to accustom him to the correction before splints are applied continuously. He has been substituting for the cast a plaster "figure-of-eight," which maintains pressure on the great dorsal curve by counter pressure on the compensatory cervical curve and on the pelvis. This splint might accomplish its purpose by encircling the one side of the pelvis, but it is borne much better if both hips are included. When putting these casts on, Rich applies the plaster bandages liberally about the body as we used to in putting on the old jackets, taking pains to reinforce well over the track of the figure eight. When the plaster sets all the unnecessary areas are trimmed off. This splint gives a means of very good retention and allows free respiration and suggests further correction. In posterior curvatures the patients are suspended at the point of the greatest deflection, lying on their backs, allowing, however, several hours to elapse before applying the corset to insure muscular relaxation and consequent correction.

Ophthalmic Record, Chicago

November

92 Sporotrichosis of the Eyeball and Eyelids. H. Gifford, Omaha, Neb.
93 Education of Marie Heurtin, Deaf, Dumb and Blind from Infancy. S. H. Brown, Philadelphia.
94 A Hookfront Binocular Magnifier. W. Reber, Philadelphia.
95 Long-Continued Use of Strychnin in Toxic Amblyopia. E. M. Blake, New Haven, Conn.
96 A Simple Device for Pneumomassage of the Eye. J. W. Dunn, Cairo, Ill.
97 Anisometropia. C. W. Kollock, Charleston, S. C.

Medical Herald, St. Joseph, Mo.

November

98 Terminology and Significance of Arthritis. G. H. Hoxie, Kansas City, Mo.
99 *Plaster-of-Paris as a Universal Dressing in Fractures of the Lower Extremity. H. W. Orr, Lincoln, Neb.
100 Tumor of the Temporosphenoidal Lobe. G. A. Young, Omaha, Neb.
101 A Day's Medical Practice in Egypt. D. L. Askren, Fayum, Egypt.
102 Early Diagnosis of Tuberculosis in Children. B. W. Tootbaker, St. Joseph.

99. Plaster of Paris as a Universal Dressing.—Orr has been using a modified method of applying plaster of Paris which he believes fulfills all the requirements of successful fracture treatment. The results in his own cases have been such as to justify a recommendation of its wider use. The method consists of applying plaster to the fractured extremity in the following manner. Plaster bandages are first applied over a suitable protective dressing like sheet wadding to include the foot and extend up to within a few inches of the point of fracture, whether in the leg, thigh or hip. When this is well set, firm traction is made on the finished portion of the cast; if there is a tendency of the upper portion to sag, it can be supported at the point of fracture, while the upper end of the cast is applied, beginning within a few inches above the point of fracture and extending to the hip in case of leg fracture or up to the thorax in case of any fracture of the femur. This upper portion of the cast is now also allowed to set and the cast is complete except at the point of fracture. The relation of the fragments of bone can now be determined and the third part of the cast applied. When this has set, immobilization is perfect and the traction which has been kept during the application of the last section of the cast is maintained as permanent traction. Any degree of traction can be obtained in applying plaster in this way. The objection

usually urged to the application of this form of cast is that allowance must be made for swelling of the parts; if such allowance must be made, it can be accomplished by the use of sheet wadding or some other material under the plaster. Orr believes that when good traction and immobilization are obtained so much allowance need not be made for swelling. Most of the swelling which follows an injury of this character is the result, not of the injury itself, but of failure to secure fixation of the injured part. When there is failure to secure immobilization, there is continued irritation and continued pain and also constant swelling. If the injured extremity is put entirely at rest there is little or no pain and but little swelling. Of course certain injuries are associated with fractures which produce a considerable reaction, but fractures of the hip, thigh and leg, unless accompanied by severe injuries of the soft parts, seldom produce severe swelling. He firmly believes that plaster of Paris combined with a reasonable degree of professional care and skill can be used in any fracture or injury of the lower extremity, and that nothing can be accomplished with any of the usual mechanical appliances or splints recommended for this purpose, but that can be obtained more easily and more satisfactorily with plaster of Paris.

Journal of Ophthalmology and Oto-Laryngology, Chicago

November

103 Anatomically Misplaced Puncta. C. W. Hawley, Chicago.
104 Prevention and Treatment of Sympathetic Ophthalmia. M. R. Dinkelspiel, Wilkesbarre, Pa.
105 Malignant Tumors of the Throat Arising from Syphilitic Cicatrices. C. M. Robertson, Chicago.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Practitioner, London

November

1 Pyometra. H. Croom.
2 Use of Plates and Screws in the Operative Treatment of Fractures. W. A. Lane.
3 Modern Treatment of Rheumatism. W. Murrell.
4 Congenital Hypertrophic Stenosis of the Pylorus. J. H. Nicoll.
5 *Etiology, Treatment and Pathology of Venereal Diseases. J. E. R. McDonagh.
6 Clinical Aspect of Intussusception. J. E. Adams.
7 Vicious Circles in Diseases of the Eyes. J. B. Hurry.
8 *Treatment of Vomiting Following Chloroform Anesthesia, Including the Use of Adrenalin. J. W. Keay.
9 *Open Method of Ether Administration. G. A. H. Barton.
10 State Prevention of Tuberculosis. D. Mulloy.
11 Primary Diphtheria of External Urinary Meatus. A. Howell.
12 Pulmonary Edema and Death. H. Matthews.

5. **Venereal Diseases.**—Of twenty patients treated by McDonagh with Ehrlich's "606," in only one was there albuminuria, which appeared a few days after the injection but did not last longer than twenty-four hours. Two individuals had a localized toxic edema of one buttock, which quickly resolved under frequent applications of lead lotion.

8. **Treatment of Vomiting After Chloroform Anesthesia.**—In Keay's opinion the cause of this vomiting varies in almost every case, and generally both the central nervous system and the stomach are at fault. The derangement may be chiefly central or chiefly local, but there is always some combination of the two. In very severe cases interference with the functions of the liver and general metabolism may be the cause. A nervous patient who has had a minor operation with short anesthesia feels violently sick, and the strenuous efforts to vomit can be distinctly heard through a closed door. A little mucus is the result. If an enema of bromid and chloral be given the violent retching ceases as the feeling of nausea disappears. If the patient has not been properly prepared for the anesthetic by low diet and tonic treatment, nausea and vomiting come on early, usually during the administering of the chloroform, and ceases, or are lessened in severity, when the stomach is emptied. This proves that with chloroform anesthesia the stomach is made irritable and wants rest. The rational treatment, therefore, for ordinary cases is: give nothing by the mouth for twenty-four hours till Nature has reasserted herself. Any foodstuff, however readily digested, if introduced into the stomach, will further irritate that organ. Thirst, which may be complained of, can be assuaged by saline enemata. When the tongue and mouth feel dry, rinsing out the mouth with aerated soda-water or lemon-water, either hot or cold, will relieve the condition.

The vomiting tends to be more severe when the anesthesia has been prolonged. The treatment for such cases is long draughts of strongly alkalin solutions aided by counter-irritation over the epigastrium. Bicarbonate of soda dissolved in hot water may be given by the tumblerful. Hot fomentations, poultices with or without mustard, bliaters, or an ice-bag are all efficient counter-irritants for the epigastrium. Of these, hot fomentations or a light poultice are the best. It is often found necessary to use some medicinal means to cure the gastritis. Keay has found that a mixture of dilute hydrocyanic acid, bismuth and soda acts very well, and in some patients with a foul tongue, powders of rhubarb, bismuth and soda are useful. In all major gynecologic operations, attended with some degree of shock, whether due to excessive exposure of the abdominal contents, to great loss of blood, or to sepsis, the complicating effects of the anesthetic are more pronounced. After most abdominal operations flatulence is relieved by giving salines by rectum, from one pint to one quart every four hours, a rectal tube being left *in situ* for an hour or so between times. Rubbing the abdomen adds to the comfort of the patient; more vigorous treatment may be required, such as turpentine enemata. If the violent sickness still persists on the second day, castor oil or magnesium sulphate should be given by the mouth. Although these drugs are most often rejected a certain quantity stays down and will do good. If the bowels do not act in six hours an enema of soap and water will prove effectual. Peristalsis, which is failing under the stress of the constant sickness, can be sustained by rectal enemata of brandy and water and sips of brandy by the mouth.

When the vomited matter is hemorrhagic and resembles beef-tea dregs or coffee grounds, the patient should be stimulated by copious draughts of hot soda solution, and in addition a solution of adrenalin chlorid, m v to m x, in a teaspoonful of water, should be given by mouth. It stimulates the muscles of the stomach walls, blanches the dilated capillaries, and sets up regular rhythmical contractions of the stomach, which causes its contents to follow their natural course and to flow on into the duodenum. For the collapse accompanied by an exceedingly rapid pulse which sometimes ensues in cases of protracted and exhausting vomiting salines and general stimulants are much more effectual than cardiac stimulants even in very large doses.

9. **Open Method of Ether Administration.**—Barton has devised an inhaler which does away with the drop bottle and only permits the passage of air over the ether during inspiration. It is made of metal and consists of a chamber with an attachable face-piece. The chamber is cylindrical, being open at the top and having another opening about the junction of the middle and lower third communicating with the face-piece. It is lined with lint which is held in place by a clip. The lint dips down into the ether contained in the well at the bottom of the chamber; the amount of ether capable of being conveniently held in the well is about 2 ounces. This is continuously soaked up by the lint, which presents an evaporating surface of twenty or more square inches. The face-piece is of the Roth-Drager type and is fitted with an expiratory valve. This may be dispensed with in cases where valves are deemed inadvisable, or may be fixed in one of two positions, either between the chamber and face-piece, or into a metal cap which is made to fit the opening at the top of the chamber. The latter position gives a stronger vapor. As designed, the apparatus is intended for use with the patient's face turned to one side. Owing to the rotation of the face-piece on its attachment to the chamber it is equally available for a right or left position of the face. For the few cases in which an upturned face is necessary, Barton has added an angle-piece for joining the chamber and face-piece. Another accessory is a pneumatic pad for use with the face-piece on patients on whom it will not otherwise fit accurately.

Australasian Medical Gazette, Sydney

October

13 Prevention of Tuberculosis. D. A. Welsh.
14 Cause, Effect, Incidence and Prevention of the Pneumokoniosis of Quartz-Miners. J. S. Purdy.
15 Medical Inspection of Schools. J. S. C. Elkington.
16 Paraplegia. W. Love and C. Butler.
17 Radium. L. H. Harris.
18 Congenital Cystic Lamphangioma of the Neck in a Child. T. Fiaschi.
19 Vaccine Therapy of Diphtheria. P. E. W. Smith.
20 Repeated Prolonged Apnea in an Infant, Without Apparent Cause. E. S. Littlejohn.
21 Pregnancy in Uterus Bicornis Unicollis. H. H. Marshall.

Glasgow Medical Journal

November

22 Diagnosis and Treatment of Syphilis. R. Muir.
23 Three Modern Poisons: Atoxyl, Veronal and Bismuth Subnitrate. F. Kaungleeser.
24 *Treatment of the Insane. H. F. Watson.

24. Treatment of the Insane.—During thirteen and a half months, treatment of the insane without the use of sedatives has been tried at the Renfrew District Asylum, Dykebar, near Paisley. The number of patients admitted during the thirteen and a half months was 304, of whom 148 were men and 156 women. There were eleven deaths (six men and five women); a necropsy was obtained in every instance. An unusually large number of cases of dementia were admitted. This is due to the fact that 66 per cent. of the admissions were of patients transferred from other asylums; the remaining patients were direct admissions. Since the opening of the asylum on April 8, 1909, no sedative of any sort has been given, no form of restraint has been employed, no patient has been under seclusion, no case of suicide has occurred; there was but one major accident, and when it occurred two attendents who were suspected of negligence were summarily dismissed. The results have been sufficiently satisfactory without sedatives, and this method of treatment has afforded an opportunity of seeing cases under circumstances different from the usual in an asylum. Watson condemns the habit of giving sedatives in quantity and over prolonged periods to patients who evidently are able to do quite well without

On admission to Dykebar Asylum, the usual treatment in every acute case, unless contraindicated, is the following: Hydrargyri chloridum mitis—calomel—(6 grs.), followed in four hours by magnesium sulphate (6 drs.). Afterward such patients get a mixture containing pulvis rhei, sodium bicarbonate and hydrargyri chloridum mitis. This is made up in bulk and 1 teaspoonful given thrice daily, the dose of calomel being 3 grains a day. Every morning the patient gets a soap and water enema, which is made up with soft soap, as this is considered less likely to produce a rash. This treatment is carried out till all signs of gastritis, intestinal disturbance (even constipation), with toxic absorption have disappeared.

In certain cases the patient seems to approach a comatose condition after an enema; this is due to the fact that the enema washes away adherent mucus (often in catarrhal layers) from the intestinal wall, and allows more free absorption of the toxins which are present. To prevent this, oleum eucalypti, 5 minims, added to the enema has been found to lead to rapid improvement. Bleeding has been found of use in acute conditions of insanity. A needle is inserted into the median basilic vein, and 10 c.c. of blood are drawn off, 20 c.c. of a 0.85 per cent. saline solution being then injected, this treatment being repeated every second day. This seems to be much more effective than administration of diuretics, and has the advantage of acting at once. When there is atony of the intestine it is well to give tincture of nux vomica, 5 minims, thrice daily, and to keep this up for from four to six weeks. When a sedative has been continued over a period of years the resistance of all the tissues is lowered.

Journal of Laryngology, Rhinology and Otology, London

November

25 Anatomy of the Capsule of the Tonsil, and Its Significance in Treatment of Diseases of the Tonsil. G. S. Hett.

Annales de Médecine et Chirurgie Infantiles, Paris

November 1, XIV, No. 21, pp. 633-688

26 *Infantile Scorbutus. (Maladie de Barlow.) A. B. Marfan.
27 *Non-Tuberculous Pyosalpinx in Virgins. P. Bégouin.
28 *Eczema in Infants. C. Rocaz.

27. Non-Tuberculous Pyosalpinx in Virgins.—Bégouin has encountered a number of cases of inflammation of the Fallopian tubes consecutive to appendicitis in virgins, but an actual pus-tube from this cause is comparatively rare. The suppurating appendix was in contact with the right tube in one girl of 16, and he removed both together. In two patients, virgins of 16 and 32, he found actual pus-tubes, bilateral and closed, non-tuberculous, and resembling in every respect those found in married women. An ovarian cyst had been diagnosed in one of the cases and in the other there were evidences of recurring appendicitis. Microscopic examination excluded tuberculosis and only anaerobic germs were found. He has been unable to find any record in the literature of such closed bilateral pus-tubes in virgins, but he has found records of peritonitis consecutive to pyosalpinx in little girls and older virgins. Riedel reported that in nine out of forty-nine cases he found a pyosalpinx instead of the anticipated appendicitis as the cause of the peritonitis requiring operative treatment in little girls under the age of 10 and in two virgins, out of 348 laparotomies for peritonitis in women. The infection occurred probably by way of the vagina and uterus in Bégouin's cases at least, both the patients having noticed leukorrhea for some time, the secretions being brownish and malodorous in one case.

28. Eczema in Infants.—Rocaz does not attempt local treatment of eczema in infants unless the child is vigorous and healthy. But dietetic and other measures to reduce production of toxins and to facilitate their elimination, and organotherapy to supplement insufficiency of certain glands with an internal secretion, benefit the general health and the eczema frequently subsides under them alone. External measures should be applied very cautiously, especially if the eczema is of large extent. Only a small area should be treated at one time and very mild applications should be used at first, the general health being watched all the time. It is important to cure the eczema, he adds, on account of its injurious influence on the nervous system and general health, and the way the skin lesions invite infection. The first indication is to get rid of all scabs and they can be softened with sterilized oil or with potato poultices applied for two or three days; the poultices are soothing in the very irritable forms. The same results may be obtained with gauze compresses under rubber tissue. Simple eczema does not require antiseptic dressings but in the impetiginous form very mild antiseptics may prove useful, mercury bichlorid 1 per 10,000 or per 5,000 or a mixture of 2 parts each of zinc and copper sulphate in 900 parts water. Phenol, he states, should never be used; infants seem particularly sensitive to its toxic action. The surface once cleansed, a mild, soothing salve is needed, vaselin with zinc oxid or lard with benzoin or, if there is much secretion, a dry dressing with a powder made of 30 parts talcum, 10 parts bismuth subnitrate and 5 parts zinc oxid. With this the lesion is kept constantly covered until the scab becomes too thick, when it is softened anew with a potato cataplasm and the dry treatment then recommenced. To keep the children from scratching face and head, he slips a pasteboard cuff over each arm, with the cuff wide enough to let the children bend their elbows sufficient to play with their toys, but the elbows cannot be bent enough to reach the face. Bathing does more harm than good, he continues, as it exaggerates the skin trouble, and is liable to spread the infection to points still free from lesions. Baths should be given very cautiously and briefly. The same dietetic and hygienic measures should be enforced for the woman nursing the child as for the child itself. A change of wet-nurse seldom does any good after the eczema is once well established. The food should be supervised with special care to reduce all chances of infection or intoxication. The substitution of asses' milk for cow's milk was followed by the subsidence of very extensive eczema in one case in his experience, and it has often aided in the cure in other cases. Thyroid treatment has proved effectual in a number of cases in the last two years, while in other cases no effect was apparent. In the cases benefited there was usually a history of a digestive intoxication or some cachexia. Under the thyroid treatment there is usually an acute exacerbation which gradually subsides and by the

end of a fortnight the skin begins to look normal and a week or so later, the eczema is cured or much attenuated. In a few cases the eczema seemed to be aggravated by the thyroid treatment; it should certainly be reserved for the torpid cases, Rocaz declares, but when the eczema has resisted all ordinary measures, including the dietetic and hygienic, a trial of thyroid treatment is justified and benefit may result. It is harmless, he states; he gives the thyroid in substance and he has never witnessed any mishaps although he has applied it in a very large number of cases and over long periods in some of them. This thyroid organotherapy has proved useful for fat babies with an inherited rheumatic taint, as this "arthritic diathesis" is liable to be accompanied by thyroid insufficiency.

Presse Médicale, Paris

November 2, XVIII, No. 88, pp. 817-824

29 *Efficacy of Roentgen-Ray Treatment of Uterine Fibroma. H. Bordier.

November 5, No. 89, pp. 825-840

30 Treatment of Simple Hare-Lip. Y. Veau.
31 Persistence of Protozoan Infection in the Nerve Centers. A. Thiroux.

29. **Radiotherapy of Uterine Fibroma.**—Bordier gives illustrations of the findings in three cases in his extensive experience in which uterine fibroma shrunk under the influence of Roentgen-ray exposures. The best results were obtained with fibromas of comparatively recent development, irrespective of the age of the patient, especially large fibromas extending to the umbilicus and not over five or seven years' growth, and with small fibromas causing considerable hemorrhage. He uses an aluminum filter and exposes the region of the ovaries and also the median line, in turn, with an interval of a day's rest. The total dose for each of the three regions is about 4.5 units under the filters; a three weeks' rest is then imposed. The menopause follows after two or three series of this kind.

Semaine Médicale, Paris

November 9, XXX, No. 45, pp. 529-540

32 *Clinical Diagnosis of Tuberculous Appendicitis. F. Lejars.

32. **Tuberculous Appendicitis.**—Lejars reports several cases of acute tuberculous processes in the appendix with or without tuberculous or ordinary peritonitis. The patients were between 20 and 32 and the feature common to all was the distention of the abdomen ushering in and persisting after the acute symptoms. In other cases the appendicitis was an ordinary inflammation but was embedded in a focus of tuberculous peritonitis. In another group of cases an acute tuberculous peritonitis simulated ordinary appendicitis. In one such case the incision in the iliac fossa showed that the omentum, cecum and appendix were studded with miliary granulations, but there was no ascites or abscess, and he sutured the abdomen without removing anything but a scrap of omentum for microscopic examination. Contrary to expectations, this exploratory laparotomy seemed to usher in a turn for the better. In this tuberculous peritonitis with localization mainly in the iliac fossa the acute phase is often brief, the pulse remains good and the temperature drops soon, in marked contrast to the great distention of the abdomen suggesting diffuse peritonitis. Evacuation of the ascites and removal of the appendix at need will generally arrest the acute phase while exerting a beneficial influence on the tuberculous peritonitis as a whole. Chronic tuberculosis in this region should be suggested by the contrast between the size and extent of the non-limited tumor in the iliac region and the absence of fever and of any noticeable reaction. Ascites should also suggest a tuberculous process, especially if persisting. Differentiation is important on account of the prognosis.

Beiträge zur Klinik der Tuberkulose, Würzburg

XVII, No. 3, pp. 281-486. Last indexed Nov. 5, p. 1688

33 *Experimental Research on Tuberculosis Immunity and Prophylaxis. P. H. Römer and K. Joseph.

33. **Experimental Research on Tuberculosis.**—This entire issue of the *Beiträge* is devoted to the report of years of research at the Institute for Hygiene and Experimental Therapy at Marburg, bearing on the questions of reinfection with tuberculosis, experimental infection of suckling animals with tuberculosis and resulting immunity, the nature of immunity to tuberculosis and studies of antibodies, the etiology of pulmonary phthisis and the practical means to combat the spread of tuberculosis, and research on the various tuberculin reactions and on hypersusceptibility to tuberculin. These questions have been studied in experiments with guinea-pigs and sheep; the latter were found peculiarly adapted for the research. The main fact which Römer and Joseph were trying to establish and which they now affirm has been demonstrated beyond question, is that one infection with tuberculosis confers a certain protection against further infection from the tubercle bacillus. Among their other conclusions is one to the effect that in the circles where tuberculosis is most prevalent scarcely any child escapes the infection. Consequently pulmonary tuberculosis in the adult develops in the overwhelming majority of cases in an organism already infected since childhood. There is every reason to assume, they say, that the law which governs tuberculosis in animals applies also to man, namely, that infection with tuberculosis confers immunity to further tuberculosis infection to the extent that small amounts of the infecting virus have no action on the already tuberculized system but rebound, making no impression. When large amounts of the infecting virus come into play this protection is inadequate to save the individual completely, but the superposed infection is modified so that it does not assume the form of galloping consumption as in the previously non-infected but runs its course as chronic pulmonary tuberculous disease. One of the practical consequences of this view is that it is important to distinguish between tuberculous infection and actual tuberculosis. Much would be gained, they declare, if efforts were directed more to prevention of phthisis rather than prevention of tuberculous infection. To combat consumption effectually requires prevention of infection in children or prevention of the possibility of massive reinfection, additional infection. Efforts to combat the spread of tuberculosis should be concentrated more on the children to save them from the threatening infection against which they have as yet no specific means of defense. The "inherited taint" is nothing, the authors declare, but the severe infection acquired in the tuberculous family during early childhood. As no source of tuberculosis infection could be discovered for half of the children who gave a positive response to the tuberculin test in Hillenberg's research, it seems evident that the tuberculosis virus exists in some mild permanent form in countries where tuberculosis has long been endemic, and permits what Andvord calls a beneficent vaccination against the disease. Experiences with cattle have shown that the strictest hygiene has no influence in preventing the spread of tuberculosis among them. There is only one thing that will do this, namely, the separation of the diseased from the well animals. Everything points to the importance of concentrating our efforts on the child, keeping it away from all contact with tubercle bacilli-sowing consumptives either by removing the child from contact with the consumptive, or by isolating the consumptive, or maintaining at least a relative isolation. Römer and Joseph suggest the possibility of conferring immunity on children by appropriate vaccination and thus arming them directly against the bacillus. This protective vaccination has been successfully worked out for guinea-pigs but it is another question whether it would prove equally harmless and equally effectual for human beings, and whether its application would ever be practicable.

Correspondenz-Blatt für Schweizer Aerzte, Basel

November 1, XL, No. 31, pp. 1025-1064

34 *The v. Pirquet Tuberculin Reaction in the Non-Tuberculous. F. Dumont.

34. **Cutaneous Tuberculin Reaction in the Non-Tuberculous.**—Infants with eczema seem to respond to the v. Pirquet skin tuberculin test, even when they are apparently free from tuberculosis, and this excessive sensitiveness to the test is sometimes encountered under other conditions. A second inoculation will generally clear up the diagnosis, as the really tuberculous are liable to give a stronger reaction the second time, while in the non-tuberculous the second attempt elicits

a much weaker response, if any. The skin is sometimes found insensible to the action of the tuberculin; this is encountered most frequently in young infants. In a few cases on record the child responded with such intensity to the skin test that ulceration followed, and Karrer reports a case of this kind from his own experience. The patient was a boy of 13 who had lost his appetite, looked bad and tired easily but there were no local findings in the lungs or glands and no cough. The inflammatory reaction to the v. Pirquet inoculation of tuberculin was unusually intense, the arm swelled and ulcerated, the nostrils showed eczematous infiltration and the eyes were inflamed for a few days. By the end of three weeks a diffuse itching erythem developed, soon followed by more papulo-necrotic processes. The new papules that formed looked like the primary Pirquet papules, and the whole syndrome was evidently the result of a specific hypersusceptibility on the part of the skin. This case resembles the two reported by Bruck in lupus patients who developed a morbilliform eruption a few hours after the v. Pirquet test had been applied. The eruption recurred again after a second inoculation a week later. In the second case the reaction to the test in a boy of 8 was the ordinary positive response, but a second injection a week later elicited an eruption resembling that of scarlet fever, with conjunctivitis and swelling of glands. The exanthem gradually subsided with desquamation. Animals injected with the blood of these patients, followed by injection of tuberculin, rapidly succumbed, confirming the assumption that the explosive reaction was due to a specially large proportion of anaphylactic antibodies in the blood of these two patients.

Deutsche medizinische Wochenschrift, Berlin

November 3, XXXVI, No. 44, pp. 2033-2080

35 Goiter. (Diagnose und Therapie des Kropfs.) E. Enderlen.
36 Quinquaud's Sign. (Zur Würdigung der Quinquaudschen Fingerkreptitation.) P. W. Fürbringer.
37 *Ehrlich's "606" in Syphilis. K. Zieler.
38 Continuous Intravenous Infusion of Adrenalin. E. Koll.
39 Colon Bacilli on Food, Etc. (Nachweis des Bacterium coli in der Aussenwelt, besonders auf Nahrungsmitteln.) G. Neumann.
40 Dysentery Y Bacillus in Intestines and Liver of Former Bacillus-Carrier. G. Brückner.
41 Symphysis Clamp for Symphysiotomy. E. Frommberger.

37. Ehrlich's "606" in Syphilis.—Zieler mentions that hemoptysis seemed to have been brought on by the injection of "606" in a case of secondary syphilis with concomitant apical tuberculosis, and he warns that this possibility should be borne in mind. In tertiary syphilis the action of the new remedy did not seem to surpass that of mercury, and in some cases was distinctly inferior. Its special field, he thinks, will be in cases refractory to mercury, but here the "606" is liable to fail also. With recent syphilis the "606" seems to act more rapidly and with greater intensity than mercury, he says, and the fact that it is impossible to kill all the spirochetes at one stroke is of minor importance. Ehrlich's hope that this might be accomplished has already been realized with relapsing fever.

Medizinische Klinik, Berlin

November 6, VI, No. 45, pp. 1767-1806

42 Practical Importance of Manic-Depressive Insanity. R. Thomsen. Concluded in No. 46.
43 *Operative Treatment of Constipation. R. Goebell.
44 *Closed Tuberculous Hydronephrosis. F. Kroiss.
45 *Ehrlich's "606" in Syphilis. W. Fischer.
46 Benzidin Test for Blood. (Zum Nachweis geringer Blutmengen mit der Benzidinprobe.) J. H. Greef.

43. Operative Treatment of Constipation.—Goebell states that he at first regarded valvotomy in treatment of constipation as another example of "American humbug," but has since found that this operation has a logical basis, and during the last two years has applied the method in six cases, slightly modifying Gant's valve-clamps, so that they can be held better by the rear and can be applied slanting at need. In his first five cases the abnormal development of the rectal valves readily explained the difficulty in rectal functioning and the division of the valves put an end to the chronic constipation. The patients were three men between the ages of 20 and 47 and two women between 21 and 27. In another case, in a woman of 26, four valves were seen in the rectum. A movable cecum was first corrected and then one of the four valves in the rectum was divided with the actual cautery. The constipation is much improved but there is still an occasional tendency in this direction. He advocates operative treatment of anomalies in the position, length and size of the large intestine, as all such anomalies are fraught with grave dangers, volvulus being liable to develop at any moment with a movable ascending colon or unusually large colon. He recently had to operate on a woman of 75 for torsion of an abnormally long sigmoid flexure, showing that age is no protection against this eventuality. In two cases he corrected an abnormally movable ascending colon and right flexure by fastening the posterior wall of the bowel to the parietal peritoneum. In three other cases he corrected conditions merely, by dividing congenital peritoneal cords binding down the flexure. In one case the intestines became occluded from adherence of the omentum to the spleen after typhoid; in another case adhesion of the omentum to the spleen and diaphragm caused a train of symptoms diagnosed as cancer. The defect left by releasing the omentum was remedied by suturing the gastrocolic ligament over the defect and suturing the appendices epiploicæ to the stomach in place of the gastrocolic ligament. There has been no recurrence of the previous chronic syndrome which included alternating constipation and fetid diarrhea and colic. Recurring colic-like pains or local tenderness relieved by defecation point to some hindrance to the permeability of the bowel, and the favorable results reported above encourage, he thinks, exploratory laparotomy when nothing can be found otherwise to explain the chronic constipation. He is inclined to advise appendicectomy in every case of constipation with pains in the ileocecal region, even when the appendix is apparently sound; any tendency to undue movability on the part of the colon or abnormal size of the sigmoid flexure is revealed by the incision.

44. Tuberculous Hydronephrosis.—In the case reported by Kroiss a young woman complained of pain in the right knee radiating to the groin but seemed otherwise in good health; the urine was normal. The physician examining her discovered a large tumor in the right side of the abdomen of whose presence the patient was entirely unaware. Operation revealed a closed right hydronephrosis with tenacious adhesions; in removing the kidney it tore, flooding the wound with nearly two liters of fluid. The microscope revealed signs of tuberculosis in the kidney, and generalized miliary tuberculosis soon developed, proving fatal in two months after the operation. There had been nothing to indicate tuberculosis in this case before the operation, everything indicating a closed aseptic hydronephrosis. If the possibility of tuberculosis had been thought of, the sac might have been drained by puncture before the nephrectomy was attempted, and thus the wound would not have become contaminated with the infectious fluid. Krauss has reported a similar case but no general infection resulted; Rochet has recently reported three cases of tuberculous wound infection during nephrectomy, but the ultimate outcome was favorable. Kroiss adds that in another case in his own experience a teaspoonful of urine from the kidney pelvis escaped into the wound as the ureter was divided, and miliary tuberculosis followed in this case also. Kocher has informed him of a similar experience, the infection in this case proceeding from the cauterized stump of the ureter. The data related emphasize the necessity for bearing tuberculosis in mind in all operations on the kidney, even when there is nothing to suggest its presence. The findings suggested that the closed hydronephrosis was only secondarily infected with tuberculosis.

45. Ehrlich's "606" in Syphilis.—Fischer states that Buschke, to whom he is assistant, declares that his extensive experience with the new remedy in the dermatologic department of the Rudolf Virchow hospital at Berlin has convinced him that it should be reserved exclusively for patients refractory to mercury. He has also encountered a few patients refractory to "606," and prolonged observation is showing that even when the primary manifestations have subsided under its influence, general symptoms are liable to develop later. The lesions which subside so rapidly under the "606," he continues, are the kinds which promptly subside under any

method of treatment or without it, the indurated chancres being more slowly influenced. In one such case the chancre was found nearly the same size and swarming with spirochetes two months after the injection of the usual dose of "606," while the patient has been tormented since with extremely frequent and severe colic pains, never observed before, and which Buschke ascribes to the arsenic. He says that no one seems to appreciate how rapidly syphilids may subside under ordinary treatment; clinicians are surprised by the rapidity of the action of the "606" when, if they will keep records of the cases in which mercury alone was used, they will frequently find that the syphilids disappear as fast or even faster under mercury. In a recent case a much debilitated man had numerous syphilitic ulcerations over his body, especially on the legs, with papulous syphilids on the back, and positive Wassermann reaction. Under salves and baths the ulcerations all healed over in twelve days and then mercury was commenced, under which the papulous syphilids soon healed. The man gained six pounds in the three weeks. The tonic effects of the care and food in the hospitals have often an amazingly favorable action on the general health without any drugs or under mercurial treatment. But the "606" has displayed great efficacy in the severe and extensive syphilis refractory to mercury, and this seems to be the special field of the new drug, although it may fail even here, as in a case Fischer has previously reported.

Syphilis of the central nervous system also seems in certain cases to be amenable to the new drug, but special caution is required here as cases have been reported in which no benefit or actual harm has followed its use; even fatalities have been reported. On the other hand, calomel renders good service in these cases, especially in the recent cases. Recurrences after "606" have been frequently reported but the question now is as to whether the recurrences are exceptionally mild or not. In four cases in Fischer's experience the recurrences were unusually early and unusually intense; in one case the symptoms indicated meningeal irritation. In a fifth case the symptoms suggested arsenic intoxication but they might have been explained by some incipient syphilitic cerebrospinal trouble, but other symptoms suggested hysteria and an epileptiform seizure and weakness of the right leg further complicated matters in respect to the share of the "606" in the syndrome. No methyl alcohol had been used in injecting the "606;" Rille and Spiethoff have also reported epileptiform seizures after its injection. In five other cases in which "606" had been injected on account of skin lesions, recurrence was observed taking the form of serious specific iritis in four and of neurochorioretinitis in the other. He knows of a number of similar cases observed by others, the recurring manifestations developing in the eyes. There was no predisposition on the part of the eyes in any of these five cases, ophthalmologic examination before the injection of "606" having shown normal conditions. He thinks that the new remedy probably has a special affinity for nerve tissue, and although it does not directly injure the nerve, like atoxyl and arsacetin, yet it provides a place of lessened resistance and here the syphilitic virus preferably locates—a syphilis *ex trauma*.

Rille and Pinkus have recently reported three cases of jaundice following administration of "606." The local necrosis sometimes observed is evidently of purely chemical nature; it is exceptionally torpid, and operative removal of the necrotic tissue is practically impossible as the necrosis goes very deep, the chemical action extending far into the interstices in the tissues. The breast is a particularly unfavorable point for the injection on this account; in one patient the necrosis in the breast extends down and into the ribs and there is danger of perforation of the pleura. Only a part of the arsenic seems to be taken up into the tissues; the rest is slowly, possibly intermittently eliminated, and these factors vary in different individuals so that it is unusually difficult to determine the tolerated dose. Fully as good therapeutic results have been observed with small as with large doses. Alt and Hoffmann have reported severe symptoms on the part of the heart after the injection of the new drug, and Fischer reports another grave case of the kind. The patient was a young man, healthy until infected with syphilis early in 1910.

Münchener medizinische Wochenschrift

November 1, LVII, No. 44, pp. 2273-2328

47 *Varying Resisting Powers of Bacteria. R. Stern.
48 *Influence of Various Diseases on the v. Pirquet Tuberculin Reaction. F. Rolly.
49 *Action of Lime. (Wirkung des Kalkes.) H. H. Meyer.
50 *Abrupt Fluctuations in Blood Pressure and Their Causes. Zabel.
51 *Transverse Laparotomy Incision. (Anwendungsgebiet des Pfannenstielschen Faszienquerschnittes.) R. T. Jaschke.
52 Hemochromogen Crystals in Forensic Tests for Blood. Methling.
53 Experimental Research on Otogenous Pyemia. L. Haymann.
54 Ehrlich's "606" in Filariasis. V. Belehmann.
55 Fracture of Epicondyle of the Humerus. P. Glaessner and Milavec.
56 Supernumerary Mamma. (Polythelie und Achselhöhlenmilchdrüsen.) R. Hofstätter.
57 Cure of Exophthalmic Goiter Syndrome by Cauterizing Points in Nasal Mucosa. R. Hoffmann.
58 Pathogenicity of Ameba of Dysentery. Y. Tanaka.
59 *Suicide Under Influence of Paratyphoid Infection. (Selbstmord durch Halsschnittwunde bei Paratyphus.) M. Mayer.

47. **Fluctuations in the Resisting Power of Bacteria.**—Stern remarks that the changes in the body during the course of an infection have been well studied, but not much is known of the changes which the invading bacteria themselves undergo in the course of the infection. His research seems to show that the ability of the bacteria to withstand the defensive reactions of the body varies widely at different times and under different conditions. Typhoid bacilli, for example, cultivated directly from the blood of a typhoid patient are sometimes unaffected by the usually bactericidal blood-serum, while the same strain cultivated through a few generations outside of the body is rapidly destroyed by the serum. This fact explains the varying action of different bactericidal serums; they prove effectual on animals—the animals being inoculated with artificially cultivated bacteria—while in man the same serum is liable to prove inactive against the invading bacteria as they have acquired resisting powers in the course of the disease process they have set up in their host. For example, if 30 grains of hexamethylenamin are given in one dose to a healthy individual, his urine kills in a few hours typhoid bacilli added to it outside. This also occurs with urine from certain persons with bacteriuria, cystitis or pyelitis, but in other cases in this same category the urine does not acquire any bactericidal property even under a prolonged course of large doses of the drug. This occurred in three out of eleven cases of cystitis and pyelitis in his experience. It is possible that the diseased mucosa secretes some substance which acts on the bacteria, rendering them hardier.

48. **Influencing of the v. Pirquet Tuberculin Reaction by Various Diseases.**—Rolly reports experiences showing that in the course of various infectious diseases the tuberculin skin test may elicit a negative changing to a positive reaction during convalescence even in the absence of tuberculosis. He presents arguments to show that this is due not to some general immunity process but rather to local modifications in the skin itself.

49. **Clinical Importance of Lime.**—Meyer has been studying in various ways the action of lime in the organism, and states that one of the best ways to obtain an insight into the action of a certain element in the protoplasm is to study what happens when this element is rendered inactive. This can be done in respect to lime by giving oxalic acid, which seems to draw the lime out of the tissues or else to bind it or in some other way to render it inactive or nullify its action. Januschke has found that experimental oxalate intoxication—not only the toxic paralysis of the heart but also general intoxication—can be arrested by administration of lime or strontium salts. This does not occur when barium salts are given although the latter are able to bind the oxalates *in vitro* as effectually as the lime salts. The effect is due not to the binding of the oxalate but to the supplying of the tissues anew with lime to replace that which has been drawn out of them by the oxalic acid. In every intoxication from an acid the lime is drawn out of the tissues, he asserts, and the lime content of the blood increases. Among the symptoms of oxalic acid intoxication are salivation, alternate maximal dilatation and contraction of the pupil and alternations of a very high and very low blood-pressure—all suggesting increased irritability on the part of the nervous system from partial loss of the

lime content of the nerve tissue. This assumption is confirmed by the increased sensitiveness to suprarenal extract of the organs innervated by the sympathetic system, as well as by the subsidence of the symptoms under administration of lime. Another phase of the physiologic action of lime has been shown by the different behavior in respect to exudates and transudates when animals are given lime. The effusions and edematous transudates observed in animals after inoculation with diphtheria toxin, mustard oil, etc., do not occur in animals previously treated with lime salts. This suggests that the increased proportion of lime in the body has rendered the vessel walls less permeable. This assumption is further confirmed by the experiences with experimental exanthems with effusion, easily induced in the non-treated animals but failing to develop in the animals previously given lime. Wright ascribes this to increased coagulability of the blood under the influence of the lime salt, but Meyer thinks that it is much more likely to be the result of changes in the walls of the vessels of the skin. The same explanation applies also to diarrhea, the result of abnormal permeability of the intestinal vessels. The research reported supplies a physiologic foundation for the sedative action of lime on the organic nervous system and for the correction of the tendency to effusions and transudates by lime salts rendering the vessel walls less permeable.

50. Fluctuations in the Blood-Pressure.—Zabel has found that the blood-pressure even in the healthy fluctuates within a wide range from apparently insignificant causes. Stimuli of all kinds are liable to raise or depress the blood-pressure temporarily. Certain persons are more instable in this respect than others, and the variations in the blood-pressure are liable to mislead in diagnosing unless the possibility of these fluctuations is borne in mind. The lowest average pressure in fifty measurements on the same individual under like conditions supplies a reliable standard—the pressure measurements taken first vary widely.

51. Advantages of the Transverse Laparotomy Incision.—Jaschke concludes from experience with the Pfannenstiel transverse incision in over 1,000 cases that the ultimate outcome is much better with this than with the longitudinal incision, even in cases with dubious asepsis. The tendency to postoperative hernia is less, the patients are able to be up earlier and the scar is less prominent. Button sutures are preferable as infection, if it occurs, remains localized to the one suture instead of running along the continuous suture. It should be fine and the superficial sutures or clips should be removed early; when the lips are not adhering by the fourth or sixth day, primary healing need not be anticipated and clips too close together and left too long may impede the escape of secretions.

59. Paratyphoid Simulating Criminal Poisoning.—Mayer reports a case in which a man cut his throat after a brief period of vomiting and diarrhea, and the family circumstances, involving property, suggested criminal poisoning that had induced mania. Necropsy revealed merely an early stage of paratyphoid infection. He has encountered three other cases of incessant cholera-like vomiting and diarrhea fatal in two days for which paratyphoid infection was responsible. A small epidemic of similar cases occurred at Kotbus in 1905. The enormous loss of fluids exhausts the patients to such an extent that the assumption of acute poisoning is almost inevitable, especially as the mind is not affected as with typhoid.

Wiener klinische Wochenschrift, Vienna

November 3, XXIII, No. 44, pp. 1547-1582

60 Anatomy and Clinic. J. Tandler.
61 Cultivation and Agglutination of and Toxin Formation by Cholera Vibrios. R. Kraus and F. Müller.
62 *Ehrlich's "606" in Syphilis. F. Bardachzi and E. Klausner.
63 The Meiostagmin Reaction. F. Michell and F. Cattoretti.
64 Histochemical Determination of Peroxydase. R. Fischel.

62. Action of Ehrlich's "606" on the Blood.—Bardachzi and Klausner found an increased proportion of urobilin in the urine after injection of the "606" in a number of patients, but the most striking effect was a remarkable transient increase or decrease in the red blood-corpuscles which was regularly observed in the patients whose blood was examined. The number of reds varied by nearly or over 1,000,000 in the seven cases cited, running from 5,750,000 up to 7,300,000 in one case in twenty-four hours and dropping from 4,800,000 to 3,800,000 by the evening of the day of the injection in another case.

Zentralblatt für Chirurgie, Leipsic

November 5, XXXVII, No. 45, pp. 1441-1464

65 *Plastic Operation for Cure of Trapezius Paralysis. (Funktionelle Heilung der Cucullarislähmung mittels freier Fascienplastik.) O. Rothschild.
66 *Resection of Stomach and Colon. (Zur Magen-Kolonresektion.) R. Goebell.

65. Fascia Transplantation in Treatment of Paralysis of the Trapezius.—Rothschild reports a case in which he realized a complete functional cure of severe paralysis of the right trapezius by a free plastic operation. The paralysis was the result of injury six months before and the patient was unable to use the arm at all, but in ten days after the operation neither the patient nor the physician was able to detect any functional difference between the use of the injured and the sound arm and the cosmetic result was equally good. The scapula is a little farther from the spine than its mate, but the two are level and the inner margin is parallel to the spine. This was accomplished by cutting a flap from the wide dense sheath of the chief muscle of the thigh, about 20 cm. long by 4 or 5 cm. wide, and suturing the narrower end to the inner margin of the scapula above its spine, and then, as the scapula was forced towards the spine and downward by an assistant, the other end of the flap of fascia, drawn taut, was fastened to the latissimus dorsi and the lower longissimus, close to the spine. The fascia pulled on the scapula with such force that the latter was drawn up to a level with its mate, and its inner margin ran parallel with the spine. In order to leave the scapula some freedom of motion, the flap was sutured to the muscles which yield a little, rather than to the vertebræ, for the inner point of fixation. The end sutured to the scapula was made purposely narrow so as not to interfere with the normal twisting of the scapula in certain movements. In order to prevent the growing of the fascia to the skin, he passed the flap through a slit in the trapezius and let it run under the longissimus dorsi. The strong traction and the eccentric insertion of the flap of fascia leave the scapula practically as free as when it was under the control of the trapezius.

66. Resection of Stomach and Colon.—In the case reported, the cecum, ascending colon and its flexure were totally excluded after resection of the stomach and appendicostomy. The operation was done for carcinoma and the patient left the hospital in good condition.

Zentralblatt für Gynäkologie, Leipsic

November 5, XXXIV, No. 45, pp. 1441-1480

67 Obstetric Nomenclature. (Zur Nomenklatur in der Geburtshilfe.) M. Neu.
68 Operative Treatment and Prophylaxis of Genital Prolapse. (Einiges über den Gewinn für die gewöhnliche Plastik aus der modernen Gestaltung der Prolapsoperationen.) H. Sellheim.

Gazzetta degli Ospedali e delle Cliniche, Milan

October 30, XXXI, No. 130, pp. 1369-1384

69 Typhoid Bacilli as Antigen in Experimental Research. (Comportarsi del potere agglutinante e del potere battericida del siero di sangue in seguito ad iniezioni di germi tifici vivi, attenuati ed uccisi.) C. Quadrone.

November 1, No. 131, pp. 1385-1392

70 Two Cases of Small-Pox Simulating Measles. (Esantema valuoloso simulante il morbillo.) A. Montefusco.

Hygiea, Stockholm

October, LXXII, No. 10, pp. 1041-1148

71 Infection-Promoting Action of Lens Substance. (Om ögats skydd mot infektion i främre kammaren och om infektionsbefordrande verkningar hos linssubstansen.) C. Lindhal.
72 Modification of Almen's Qualitative Test for Sugar in the Urine. (Om kvalitativ bestämning af socker i urin.) G. Bohmansson.

Ugeskrift for Læger, Copenhagen

October 13, LXXII, No. 41, pp. 1219-1268

73 Multiple Mucocele. (Mucocele af Pandehulen og Sibenscellerne.) E. Schmiegelow.
74 *Diagnosis of Tuberculosis in Infants. (Bidrag til Læren om Tuberkulosens tidlige Klinik. II.) C. A. Blume. Commenced in No. 40.

October 20, No. 43, pp. 1269-1298

75 Alleged Remedies for Diabetes. (Undersøgelse af et Arkanum mod Sukkersyge.) M. Lauritzen.

October 27, No. 43, pp. 1299-1332

76 Passage of Drugs, etc., into the Cerebrospinal Fluid. (Overgang af Medikamenter og andre Stoffer i Cerebrospinalvæsken.) P. T. Hald.

77 *Therapeutic Inhalation of Oxygen. (Iltinhalation.) Tønder. Ing. Commenced in No. 42.

74. **Tubercle Bacilli in Mucus from Infants' Larynx.**—Blume's method of obtaining mucus from the larynx as an aid to the diagnosis of tuberculosis was mentioned in THE JOURNAL, Aug. 21, 1909, page 664, with instances of valuable information thus obtained which had escaped all other means of investigation. He here reports the application of the method to very young infants long before any of the tuberculin skin reactions could be elicited and before expectoration was possible. It is easier to obtain the mucus from the larynx of an infant than from an adult. The child gags as the index finger of the gloved left hand is introduced far back into the mouth; it is then easy to wipe up cautiously a scrap of mucus from the larynx with the cotton swab. In six cases reported in detail in hygienic, wealthy homes or in an institution, the suspicion of possible contact infection was confirmed by the finding of tubercle bacilli in the mucus, in one case only twenty-eight days after birth. He expatiates on the importance of an early diagnosis, citing Neisser's practice of testing with tuberculin all his lupus patients since he witnessed extensive tissue destruction and blindness in a mother and daughter in the course of supposed lupus, which later proved to be of syphilitic origin. Pontoppidan has also published cases of tuberculous meningitis in adults which were incorrectly treated on the assumption of delirium tremens. Liebermeister also obtained positive results in inoculation of guinea-pigs in three out of five cases of supposed alcoholic neuritis. Blume also reaffirms the extreme importance of the amount of tuberculous virus with which the individual is infected, suggesting that infants alone are able to contract infection from the mild cases, while adults escape. He also discusses further Nature's "beneficent vaccination," to which some ascribe the modification of the course of tuberculosis in recent decades, as in Denmark, for example, where tuberculosis is far more prevalent now than it was up to 1870, while the mortality has reached the lowest recorded percentage, pulmonary phthisis growing rarer every year. He does not believe that we have Nature to thank for this. "Nature," he says, "is a poor vaccinator; her vaccine-virus is more virus than vaccine." If it were otherwise, and if all were properly vaccinated by Nature in early childhood, then the tuberculin reactions would be growing less frequent among adults, while in reality the opposite is the case.

77. **Therapeutic Inhalation of Oxygen.**—Tøndering tabulates the details of forty-five cases of asthma with or without pulmonary emphysema, of chronic bronchitis, neurasthenia with insomnia or simple anemia, in which marked improvement was realized under treatment by inhalation of oxygen in all but two instances, and no harm resulted in any case. The oxygen was inhaled at first for twenty minutes a day and after a week or so was combined in some cases with instrumental artificial respiration.

Books Received

Books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

TIFO EXPERIMENTAL EN LOS MONOS INFERIORES (CUARTA NOTA): Inmunidad Conferida por Inyección de Sangre Calentada á 55° Centigrados. Sensibilidad al Tifo, de los Monos de la Especie *Mycetes villosus*. TIFO EXPERIMENTAL EN LOS MONOS INFERIORES (TERCERA NOTA): Ineficacia del Atoxil. Destrucción del Virus por Calefacción á 55° Centigrados. By A. Gaviña and Girard, del Instituto Bacteriologico Nacional de Mexico. Publicaciones del Instituto Bacteriologico Nacional. Paper. Pp. 7 each. Mexico: Imprenta de Ignacio Escalante, 1910.

NOTA PRELIMINAR SOBRE EL TIFO EXPERIMENTAL EN LOS MONOS INFERIORES (Num. 1): Nota Preliminar sobre Ciertos Cuerpos Encontrados en la Sangre de los Individuos Atacados de Tifo, Tabardillo (Num. 2): Segunda Nota sobre el Tifo Exantematico en los Monos Inferiores, Ateles-Vellerosus, Inmunidad Conferida por un Primer Ataque.—Resistencia del Virus á la calefacción (Num. 3). By A. Gaviño and J. Girard, del Instituto Bacteriologico Nacional de Mexico. Publicaciones del Instituto Bacteriologico Nacional. Paper. Pp. 36. 1910.

ANÆMIA. By Obermedizinalrat Professor Dr. P. Ehrlich, Director of the Königl. Institut. für Experimentelle Therapie, Frankfurt a.-M., and Dr. A. Lazarus, Professor of the University of Berlin, Charlottenburg. Part I. Vol. I. Normal and Pathologic Histology of the Blood. Second Edition, Revised by Dr. A. Lazarus, and Dr. O. Naegeli, Privatdocent, Zurich. Translated from the German by H. W. Armit, M.R.C.S. Cloth. Price, $4. Pp. 218, with illustrations. New York: Rebman Co., 1910.

MANUAL OF CLINICAL PATHOLOGY. For the General Medical Practitioner. Comprising the Examination of Urine, Stomach Contents, Fæces, Blood, and the Serum Diagnosis of Syphilis, Tuberculosis, Typhoid Fever, etc. By Richard Weiss, Ph.D. In Collaboration with George Herschell, M.D., London, and Andrew Charles, F.R.C.S., Dublin. Paper. Price, 2 shillings Pp. 72, with illustrations. London: J. & A. Churchill, 7 Great Marlborough St., 1910.

URGENT SURGERY. By Félix Lejars, *Professeur Agrégé à la Faculté de Médecine de Paris*. Translated from the Sixth French Edition by William S. Dickie, F.R.C.S., Surgeon North Riding Infirmary, Middlesbrough. Vol. II. The Genito-Urinary Organs—the Rectum and Anus—the Strangulated Hernias—the Extremities. Cloth. Price, $7 net. Pp. 580, with 536 illustrations. New York: William Wood & Co., 1910.

HINTS FOR THE GENERAL PRACTITIONER IN RHINOLOGY AND LARYNGOLOGY. By Dr. Johann Fein, Privatdocent at the University of Vienna. Translated by J. Bowring Horgan, M.B., Late House Surgeon at the Hospital for Diseases of the Throat, Golden Square, London, W. Cloth. Price, $1.50. Pp. 223, with 42 illustrations. New York: Rebman Co., 1910.

BACON IS SHAKE-SPEARE. By Sir Edwin Durning-Lawrence, B.A. Together with a Reprint of Bacon's Formularies and Elegancies Collated, with the Original MS. by the late F. B. Bickley, and Revised by F. A. Herbert, of the British Museum. Cloth. Price, $1 net. Pp. 286, with illustrations. New York: The John McBride Co., 1910.

THE MENTAL SYMPTOMS OF BRAIN DISEASE. An Aid to the Surgical Treatment of Insanity, Due to Injury, Hemorrhage, Tumors and Other Circumscribed Lesions of the Brain. By Bernard Hollander, M.D. With Preface by Dr. Jul. Morel, Late Belgian State Commissioner in Lunacy. Cloth. Price, $2. Pp. 237. New York: Rebman Co., 1910.

GEHIRN UND RÜCKENMARK. Leitfaden für das Studium der Morphologie und des Faserverlaufs. Von Dr. med. Emil Villiger, Privatdocent für Neurologie und Neuropathologie an der Universität Basel. Second Edition. Cloth. Price, 12.80 marks. Pp. 278, with 224 illustrations. Leipzig: Wilhelm Engelmann, 1910.

FRÉQUENCE DE LA TUBERCULOSE PARMI LA POPULATION DE KIRUNA (Lapland). Par Gustaf Neander. Questions Sociales Hygiéniques. Examens Scientifiques et Pratiques en Laponie, Organisés par la Société Lhossavaara-Kirunavaara. Paper. Pp. 38, with illustrations. Stockholm: Nordiska Bokhandeln.

PHYSICAL CHEMISTRY: ITS BEARING ON BIOLOGY AND MEDICINE. By James C. Philip, Ph.D., Assistant Professor in the Department of Chemistry, Imperial College of Science and Technology, London. Cloth. Price, $2.10 net. Pp. 312, with 23 illustrations. New York: Longmans, Green & Co., 1910.

LE TRONC CŒLIAQUE. Par Pierre Descomps, Prosecteur des Hôpitaux. Travail de l'Amphitheatre d'Anatomie des Hôpitaux. Recherches d'Anatomie Chirurgicale sur les Artères de l'Abdomen. Cloth. Price, 10 francs. Pp. 205, with 97 illustrations. Paris: G. Steinheil, 1910.

A MANUAL OF DISEASES OF THE NOSE, THROAT AND EAR. By E. B. Gleason, M.D., Clinical Professor of Otology in the Medico-Chirurgical College. Second Edition. Leather. Price, $2.50 net. Pp. 563, with 228 illustrations. Philadelphia: W. B. Saunders Co., 1910.

THE HYGIENE OF INFANCY AND CHILDHOOD AND THE UNDERLYING FACTORS OF DISEASE. By A. Dingwall Fordyce, M.D., Extra Physician, Royal Hospital for Sick Children, Edinburgh. Cloth. Price, $2.50 net. Pp. 280. New York: William Wood & Co., 1910.

THE PREVENTION OF SEXUAL DISEASES. By Victor G. Vecki, M.D., ex-President San Francisco German Medical Society. With Introduction by William J. Robinson, M.D. Cloth. Price, $1.50. Pp. 132. New York: The Critic and Guide Co., 1910.

THE PRESCRIBING OF SPECTACLES. By Archibald Stanley Percival, M.B., Senior Surgeon Northumberland and Durham Eye Infirmary. Cloth. Price, $2 net. Pp. 159, with 24 illustrations. New York: William Wood & Co., 1910.

PHASES OF EVOLUTION AND HEREDITY. By David B. Hart, M.D., Lecturer on Midwifery and Diseases of Women, School of the Royal Colleges, Edinburgh. Cloth. Price, $2. Pp. 259. New York: Rebman Co., 1910.

A PRACTICAL GUIDE TO THE NEWER REMEDIES. By J. M. Fortescue-Brickdale, M.D., Physician to Clifton College. Cloth. Price, $2 net. Pp. 273. New York: William Wood & Co., 1910.

FOURTH BIENNIAL REPORT OF THE STATE HOSPITAL FOR EPILEPTICS, PARSONS, KAN. For the Two Years Ending June 30, 1910. Paper. Pp. 49, with illustrations. 1910.

THE MODERN TREATMENT OF ALCOHOLISM AND DRUG NARCOTISM. By C. A. McBride, M.D. Cloth. Price, $2. Pp. 376. New York: Rebman Co., 1910.

THE WELLCOME PHOTOGRAPHIC EXPOSURE RECORD AND DIARY. 1911. Cloth. Pp. 271. Price, 50 cents. New York: Burroughs Wellcome & Co.